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Publishers Reaffirm Distribution Policy

WASHINGTON — Rapid action to implement suggestions made late last week by a committee of newspaper publishers toward voluntary control of newsprint distribution was expected this week, following release of the committee report by Sen. Homer E. Capehart, chairman of the Newsprint and Paper Shortage Sub-committee. The Senator promised that the recommendations would be submitted to the committee at the earliest possible moment. They were presented by Gen. Julius Ochs Adler, chairman of the publishers committee, who was accompanied by Charles E. Moreau, representing the National Editorial Association, and Cranston Williams, general manager of the American Newspaper Publishers Association.

Early action to broaden the scope of the program and at the same time to limit it, were foreshadowed. The committee reaffirmed the undertaking of publishers to see that all papers of general circulation, daily or weekly, were to be provided with paper. It also recommended that representatives of the manufacturing and jobber branches of the paper industry be included in the permanent committee to be set up, and that magazine representatives also be included.

"We reaffirm," said the report, "the voluntary undertaking of the publishers to do all in their power through local associations and otherwise to see that all newspapers of general circulation, dailies and weeklies, obtain sufficient newsprint to continue to publish.

"With respect to other publications included under Section 521 of the Postal Laws and Regulations, the committee is of the view that newspaper publishers cannot undertake to provide newsprint for such users. However, we are willing and desirous to cooperate with the manufacturers, paper jobbers and magazines to assist in resolving any difficulty due to a newsprint shortage involving publications coming under Section 521.

"To this end, we recommend an overall committee of seven which in addition to newspapers should include representatives of the above mentioned groups.

"Such committee would investigate any cases of distress involving newsprint to uncover the causes and to seek a solution.

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Paper Trade Convention Ends Busy Sessions Elects Towne

May Again Ship Woodpulp Through Great Lakes

NEW YORK—Negotiations now going on among the interests concerned with woodpulp imported into the United States from Scandinavia, point to possible chartering of cargoes into the Great Lakes during the coming season.

Three steamship lines expect to be operating about eight of the small ocean-lake type vessels from Scandinavian ports into the Lakes to Chicago and other ports. These vessels, after partially unloading cargo at Montreal, are able to continue the trip down through the locks into the Lakes carrying about 1,300 long tons. This mode of shipment stands to show substantial savings to midwest consumers of woodpulp.

The situation on transshipping possibilities out of Montreal is not yet clear due to the delay in the Canadian Government's decision on allocation of lake bottoms for the eastbound grain movement. It is hoped, though, that some space will be available on these canal ships for the westbound movement of woodpulp.

A. W. TOWNE
Elected President of the National Paper Trade Association

NEW YORK—With election of A. W. Towne, of Blake, Moffitt & Towne, general paper merchants of San Francisco, to be its next president, the forty-fourth annual convention of the National Paper Trade Association closed its three-day session on Wednesday afternoon at the Waldorf-Astoria. The meetings of the convention had been packed with interest and all drew heavy attendance from the nine hundred registrants of the week. Monday's first open session had provided Styles Bridges, U. S. Senator from New Hampshire and Reuben B. Robertson, president of the American Paper and Pulp Association, as speakers. A meeting on Tuesday morning had been for both the fine and wrapping paper divisions of the membership. It was addressed by W. E. Long, former president of the National Wholesale Drygoods Institute, by E. W. Tinker, executive secretary of the APPA, and by W. G. Leathers of the NPTA executive office.

The fine papers division held a meeting on Tuesday afternoon with A. W. Towne, NPTA vice-president for this division, as chairman. Speakers during this session were M. C. Dobrow, executive secretary, Writing Paper Manufacturers Association; C. B. Morgan, president, Eastern Corporation; R. I. Worrell, president, Mead Sales Company; F. Henry Savage, manager, book and bond division, International Paper Company, and Thomas Leech, vice-president and sales manager, Whiting-Plover Paper Company.

A similar meeting on Wednesday morning had programmed H. S. Daniels, of the Union Bag and Paper Corporation: L. E. Croy of the Marathon Corporation; F. K. Doscher of Lily-Tulip Cup; W. B. Killhour, W. G. Leathers and J. H. Londergan of the NPTA organization.

Wednesday afternoon was given over to a final joint meeting of both divisions and to the annual election. Towne, who moves into the top office of the association, has been vice-president for fine papers. To succeed him in that post L. A. Ramaker, of the Bouer Paper Company, Wilwaukee, was elected vice-president, represent-

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Pacific Mills Names Two to New Posts

OCEAN FALL, B. C.—J. Harold Falls of Vancouver has been appointed townsite manager for Pacific Mills, Ltd., at Ocean Falls, and John A. Whittaker, Welland, Ont., has been appointed to head up the company's industrial engineering department at its Ocean Falls pulp and paper mill. Both appointments become effective immediately.

Mr. Falls was previously engaged in the construction business in British Columbia in association with his father, H. P. Falls, well-known Vancouver building contractor. From 1941 to 1945 he was attached to the RCAF as works and building superintendent at elementary flying training schools in Lethbridge and High River, Alberta.

Mr. Whittaker, who entered the industrial engineering field with Joseph Stokes Rubber Company, Ltd., at Welland, was educated at Stratford and the University of Toronto. He later became associated with the B. F. Goodrich Rubber Co., Ltd., at Kitchener. During the war years he was engaged in the production of Bofors 40-mm anti-aircraft guns in the ordnance division of Otis-Fensom Elevator Company, Ltd., at Hamilton. Following his war industry service he returned to the Joseph Stokes Rubber Company, Ltd., as supervisor of standards.

Consolidated Plastics Division Addition Nears Completion

WISCONSIN RAPIDS, Wis.—Work on the addition to the plastics division of the Consolidated Water Power and Paper Company is scheduled to be completed about April 15. The addition will house machinery for fabricating processes, which have been conducted in two rented buildings and at Ahdawagam Paper Products Company, where the space is needed for other purposes. The brick structure, 180 by 160 feet, extends west from the newest portion of Ahdawagam's plant and conforms to the architectural design of the latter.

General Paper Mill Gutted by Fire

BEAVER DAM, Pa.—Destruction estimated at $300,000 was caused over the last week-end by a disastrous fire that started at 2:45 A.M. Sunday and burned all day in the General Paper Company mill here, five miles south of Coatesville. The building itself was almost completely wrecked.

A locomotive, dispatched to a railroad siding beside the mill, hauled four carloads of raw pulp to safety before the flames reached them. Only the finishing room at one end of the second floor was saved from serious damage. A large paper manufacturing machine was badly damaged.

The damage was estimated roughly at $300,000 by Ralph Bicking, plant superintendent. He said the machine and beater rooms, where the most valuable equipment was located, had been virtually destroyed.

The company, which manufactured paper towels, is a subsidiary of the Western Disinfectant Co., New York. Mr. Bicking said its 50 employes would be made jobless, "at least temporarily."

Howard Emerson Retires From Crocker, Burbank

BOSTON—Howard Emerson, who has been actively involved in the sale of Crocker-Burbank products since 1899 has retired as manager of Crocker, Burbank Papers, Inc., Boston office.

Mr. Emerson at that time entered the employ of his uncle's company, F. E. MacComber & Company, as one of the sales agents for Crocker, Burbank & Co. Assn. In 1926, Mr. Emerson joined with Clark & Company, the then general sales agents for Crocker, Burbank & Company. In September of 1938 Clark & Company was dissolved and the parent company then formed its own sales organization, Crocker, Burbank Papers, Inc., and Mr. Emerson continued as manager of the Boston office.

With the retirement of Mr. Emerson, Crocker, Burbank Papers, Inc., are closing their Boston office and will service their Boston and other New England customers from the home offices at the mills in Fitchburg. The trade, by using the present Boston office telephone number will be connected by direct wire to the home offices. Mr. Emerson plans to fully enjoy his retirement by spending several months a year at his home at Northport, Maine, and the winter months in Florida.

River Raisin Increases Directorate to Nine

MONROE, Mich.—At the annual meeting of the stockholders of the River Raisin Paper Company, Monroe, Michigan, held March 25, stockholders voted to increase the board of directors from six to nine members. The new directors, all associated with the management of the company for many years, are: Arthur J. Goetz, Harry R. McGovern, Harry L. Lamb. Directors reelected are: J. Frank Gray, Charles L. Wood, J. W. Walter, Edward C. Hollingsworth, B. K. Walter, William P. Smith.

The new board met following the stockholders' meeting and elected officers for the coming twelve months: J. Frank Gray, chairman of board; Charles L. Wood, president and general manager; J. W. Walter, secretary-treasurer; Edward C. Hollingsworth, vice-president in charge of sales; and Arthur J. Goetz, vice-president in charge of purchases. Mr. Goetz's office is an addition to the officers of the company.

Marinette Captures Scott Annual Safety Awards

MARINETTE, Wis. — The Marinette Paper Company had the lowest accident rate in the Scott Paper organization during 1945 and 1946, it was revealed at the 1947 safety banquet at Hotel Marinette.

D. B. Wilkinson, general manager of the local plants, spoke briefly commending the safety record, and then introduced Harrison F. Dunning of Chester, Pa., who recently was appointed general manager of all paper mills of the Scott Paper Company. He discussed the importance of a safety program.

James Conaway, safety manager of the Scott plant in Chester, presented the local plant with a plaque for attaining the lowest number of accidents per million man-hours worked last year. Gordon Lemke, of the Employers Mutual Insurance Company, presented the Marinette mill with an award for winning the 1945-1946 safety contest sponsored by his company.

Einar T. Martenson, safety supervisor of the Marinette Paper Company, was toastmaster. About 80 Marinette Paper Company supervisors, safety committee members and guests attended the banquet. A number of visitors from other Scott plants were present.

LeMontt Elected to Stough Board

CHICAGO — At a recent meeting of the board of directors of Robert A. Stough Company, Inc., James A. LeMontt, formerly with Brower Paper Company and Central Ohio Paper Company, was elected vice-president and a member of the board of directors. Mr. LeMontt's wide experience and acquaintance with the trade has been an extremely valuable addition to the organization. He has made it possible to intensify the representation of the many manufacturers who have worked with the corporation so closely in the past.

Develop Sales Training Course

CHICAGO — Berkshire Papers, Inc., paper jobbers, have developed a unique and promising course of training for paper salesmen, according to Hamilton Vose, Jr., president of the company. Five young salesmen are now busily engaged in taking the one year course which is designed to train them in all branches of the business. Included in the training course are trips to paper mills and printing plants to permit trainees to understand the product from the ground up and to acquaint them with the practical usage made of paper in the printing plants of the country. The course, it is reported, is one designed by the company and has no connection with any "official" training courses of any kind.

Central Paper Has New Sales Set-up

MUSKEGON, Mich. — The Central Paper Company sales staff, headed by E. W. Pitt, will be composed of three separate units, sales supervision, customers services and product development. Sales supervision will be headed by D. H. Strickland, who will supervise all salesmen, sales representatives and district sales offices. Customers services will be directed by Don DeGlopper, who will act as liaison between sales and production, order scheduling, as well as shipping and routing of the completed order. Product development will be headed by Gavin H. Mullen, who will take care of technical details on customers' inquiries, develop new products and applications, handle samples, promotional details and market research.

The new laboratory building to be under Mullen's direction, adjoins the company's main office and is fully equipped for all types of pulp and paper products development. It consists of a special chemical laboratory, general chemical laboratory and general paper laboratory devoted to practical testing of papers under exact usage conditions. Also, a fully equipped pulp and color laboratory, scale and microscope room and a constant humidity room for paper testing.

Equipment is being installed for pilot operations which will be conducted in a spacious basement in the laboratory building.

Arthur Proudfoot has been named as West Coast sales representative for the company. Mr. Proudfoot has been associated with the paper industry for the past fifteen years. He will maintain offices at Room 206; 909 South Atlantic Boulevard, Los Angeles 22.

Owen Joins Fernstrom as Third Machine is Readied

POMONA, Calif. — L. B. Owen has joined the Fernstrom Paper Mills, Inc., staff as assistant to the mill superintendent as a specialist in paper machine operation. Mr. Owen has been active in the paper making trade in the southern states for many years, having worked in the Ecusta Paper Corporation, Brown Paper Mills, and Crossett Paper Mill.

To the two tissue machines which it now operates, a Yankee Fourdrinier operating at speeds up to 650 feet per minute; and a pick-up Fourdrinier operating up to 875 feet per minute. Fernstrom is in the process of building a new paper mill building. Late in the year the company will start up No. 3 machine which will be 160 inches wide wire with pick-up felt for the manufacture of fruit wrapping tissue and other tissue specialties in speeds up to 1,200 feet per minute.

E. W. TINKER
Tells dealers of solid future

International Products Opens Syracuse Sales Office

NEW YORK — International Paper Products Division of International Paper Company will open a branch sales office in Syracuse, N. Y., on April 1. W. A. Scholl will be district sales manager of the office to be located at 269 Erie Boulevard, West.

International Paper Products Division has nine other branch sales offices, with district sales managers, located in Atlanta, Baltimore, Boston, Camden (Ark.), Chicago, Cleveland, Philadelphia, Pittsburgh, and St. Louis. The establishment of two more branch sales offices is under consideration at this time.

International Paper Products Division sells the heavy-duty multi-wall kraft paper bags made by Bagpak, Inc., and George & Sherrard Paper Company, wholly-owned subsidiaries of International Paper Company. The largest users of these multi-wall bags are the cement, fertilizer, lime and limestone, food products, and chemical industries.

Combines Executive Posts

CHICAGO—While continuing as general manager of the Ward Paper Company plant at Merrill, Wisconsin, D. B. Smith will also combine those duties with the job of acting as executive vice-president and general manager of the Transco Envelope Company of Chicago, a subsidiary of the Ward company.

Bryant Appoints Kidder

KALAMAZOO, Mich. — W. K. Kidder, formerly associated with the Chicago headquarters of Nation-wide Papers, Inc., of Chicago, has recently been appointed mill manager of the coating and converting division of the Bryant Paper Company's Kalamazoo mill.

Tinker Sees Rises In Book and Groundwood

NEW YORK—E. W. Tinker, secretary of the American Paper and Pulp Association, drew a nicely balanced picture of the present and immediate future prospects of the paper industry this week when he spoke before the Tuesday morning session of the National Paper Trade Association Convention in the Waldorf-Astoria. While he emphasized the caution and prudence with which investments in extensive new capacity must be approached he also presented a soundly reasoned argument that increases in use of paper will continue at least until the end of next year. The heaviest increases percent, he showed, will be in book paper and groundwood printing papers. The heaviest increase in tonnage will be in paperboard. He expects a decline in domestic production of newsprint.

"I suppose," he said, "no executive or directorate that must assume the responsibility for the expenditures involved in installing new capacity has failed to give consideration to factors having a bearing on the soundness of investments. The question whether the existing seller's market may be of temporary duration is of concern. Certainly anyone investing money beyond essential maintenance in a paper mill must do so with full realization of the uncertainties involved in construction costs at this time. That they will be very high is certain but how much higher is a question. The relationship between the ability to produce a product and the future availability of essential supplies of raw materials involved in the manufacturing of the product must also be of vital concern when the wisdom of new capital investments is considered.

"It is axiomatic that in the final analysis the production of paper and paperboard will be controlled by its consumption. Consumption has risen from approximately 145 pounds per capita in 1920 to 318 pounds in 1946. While over a 25-year period increased use of paper and paperboard has been enormous, there have been sufficient short-term movements to inflict considerable hardship upon those companies not in a financial position to take advantage of the long-term trend. In general, short-term fluctuations in consumer absorption of paper and paperboard have followed the trend of general business conditions. One major exception occurred in 1941 when an almost panic buying condition was created by exaggerated and hysterical statements with respect to anticipated requirements which were issued from Washington. In my judgment there is reason to suspect that a somewhat similar situation exists today because of apparent shortages in certain kinds of paper. If history repeats itself a let-down, probably of a temporary

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Brompton-Election Replaces White

TORONTO, Ont.—Interest in this district in the fight for control of St. Lawrence Corporation centered this week around Brompton Pulp and Paper Company, Ltd., an important subsidiary, with plants at Nipigon and Red Rock, in the Thunder Bay district of Northern Ontario, as well as the Quebec properties. Brompton shareholders met in Montreal early in the week and elected a new board of directors, with the following new faces: P. M. Fox, H. C. Flood, A. H. Campbell and Aubrey Davis, to fill vacancies caused by the resignations of R. W. Steele, C. W. Colby, P. H. Scowen and Arthur White. Mr. White was president of Brompton, with Mr. Steele as vice-president and Mr. Scowen general manager.

All shares voted at the meeting, a total of 199,070, out of a possible 300,000, were in favor of ousting Mr. White. A. K. Cameron represented St. Lawrence Corp. and voted its 298,939 shares.

Charles E. Hunter, vice-president of the New York Trust Company, was added to the list of the Shareholders' Representative Committee, which is backing St. Lawrence management in the fight for control of St. Lawrence Corp.

There is much discussion here over the calling of the annual meetings of the three St. Lawrence Corp. operating subsidiaries for April 9, in advance of the parent company's annual meeting. By calling these meetings first the present St. Lawrence Corp. management will be able to ensure that directors of the St. Lawrence Paper Mills, Lake St. John Power and Paper and Brompton Pulp and Paper will be on its side, it is conceded, but some there are who are inclined to the view that this is not exactly "cricket." They question the ethics of the St. Lawrence management and there is much argument to the effect that the annual meetings of the subsidiaries should have been held after that of St. Lawrence Corp., the date of which has not been announced.

It is pointed out that a special Brompton by-law would permit the calling of a special meeting to name a new slate of Brompton directors, if the opposing group, headed by Arthur White, proves to have control of St. Lawrence Corp. But there would appear to be little chance of changing the directors of the other two subsidiaries prior to the next annual meeting, as these companies have no provision in their by-laws whereby special meetings may be called to replace directors until their term has elapsed.

The argument is used that in view of all this, it would seem to be only sound practice to await settlement of the control question for the parent company before holding the annual meetings of the subsidiaries.

Pacific Mills Extends Duties Of Its Sales Executives

VANCOUVER, B. C.—H. C. Pim, vice-president and director of Pacific Mills Limited, Vancouver, has been appointed a director of Canadian Boxes Limited, Pacific Mills subsidiary in Vancouver. Mr. Pim, who is now sales manager for Pacific Mills, will assume the title of director of sales for Canadian Boxes Limited. He has been associated with Pacific Mills since July, 1919, and became a vice-president in July, 1943.

Quentin A. Leitch has been appointed assistant sales manager for export sales and Frank Scott assistant sales manager for domestic sales. Both are attached to the company's Vancouver head office. Mr. Leitch and Mr. Scott have spent their entire business careers with Pacific Mills, each beginning as an office boy. Mr. Leitch joined the company in 1925 and Mr. Scott in 1933. Mr. Leitch will continue to handle several Canadian paper converting company accounts.

SAPEYES To Hear Altman

CHICAGO — The western division of the Salesmens Association of the Paper Industry will hold a closed meeting for members only on Monday noon, April 7. Norman Altman, vice-president of the Butler Paper Corporation, is to be the featured speaker at the Hotel Sherman session and is expected to provide a real insight into current problems of the paper trade. The SAPEYES here held no session on March 31 because of the N.P.T.A. meetings in New York City which attracted an exceptionally good attendance from this area. A round table discussion was held at the last meeting with the salesmen not too optimistic about the current outlook and the extreme shortness of supply. Despite the comment from all sides that things are loosening up, the salesmen are reported to be almost unanimous in their belief that there will be no betterment in the supply situation during the entire year of 1947.

Mead Heads Cancer Drive

WISCONSIN RAPIDS, Wis. — Stanton W. Mead, vice-president and treasurer of the Consolidated Water Power and Paper Company, last week was appointed chairman of Wood County for the American Cancer Society. The appointment was made by Walter J. Kohler, Jr., Kohler, state chairman of the society. Mr. Mead will direct the financial campaign in business and industry in his territory during April, the month officially designated as Cancer Control Month.

Foresters See Flaws In Vancouver Bill

VANCOUVER, B. C. — Complete revision of proposed amendments to the Forest Act in British Columbia destined to institute sustained forest yield in the province was recently urged on the cabinet by the Vancouver section of the Canadian Society of Forest Engineers. The delegation waited on the cabinet and charged that legislation now proposed by the government amounted to virtual confiscation of present equities.

"We are convinced that no private person or operating company, owning or holding productive forest land in this province, could afford to accept voluntarily the terms as set out," said the delegation's brief. "There is no adequate compensating inducement or equitable basis for the surrender of existing property rights now held under lease, license or crown grant and the terms, as written involve virtual confiscation of present equities.

"This is contrary to the recommendations of the Sloan commission and of this society and, we believe, also the announced intention of the government."

The delegation urged a revision of the proposed legislation along more practical and realistic lines to bring about long overdue reform in forest laws more effectively than provided for in Bill No. 7, the amendments before the legislature.

In the unlikely event that any owners or holders of various tenures should apply for proposed management licenses as provided for in Bill No. 7, the delegation contended, all such tenures would eventually revert to the crown.

"Eventually there would be left no private ownership of productive forest lands in this province," the brief said.

The delegation noted that the crown in British Columbia owned more than 75 percent of the productive forest lands.

"The task of establishing proper forest management of this vast unencumbered area in spite of every necessary legislation since the passage of the Forest Act in 1912 has proved beyond the capacity or means of the forest service."

The foresters told the cabinet that in most countries in addition to large holdings, as much as 25 percent of the productive forest lands now under sustained yield remain in the hands of thousands of small holders, whose operations range from a few acres or more and include farm wood lots operated for a continuous crop.

Windsor Locks Strike Ends

WINDSOR LOCKS, Conn. — A wildcat strike by 60 unorganized employes of the Windsor Locks Paper Company has ended after the management agreed to consider a 15-cent-an-hour wage increase demand.

JOB PROVED

SUNOCO EMULSIFYING CUTTING OIL—A self-emulsifying oil which produces a stable white emulsion when mixed with water. Sunoco is an efficient and economical cooling and lubricating medium for turning, milling, drilling, and other metalworking operations on both ferrous and non-ferrous metals. It is also an excellent grinding coolant.

SUN QUENCHING OILS—Specially refined oils designed to develop maximum physical properties in a wide variety of steels.

SUN TEMPERING OILS—Specially refined oils for tempering steel up to 550°F. Due to their low carbon content and stability under heat, these oils have an unusually long service life.

SUN ROLLING OILS—Straight and emulsifying oils which will permit maximum production in rolling steel, aluminum and brass.

SUN ANTI-RUST COMPOUNDS—Petroleum base oils with chemical additives designed to prevent the rusting and corrosion of steel.

SUN PROCESSING OILS

SUNOTEX TEXTILE OILS—Designed to impart certain additional properties to various forms of fibers during their processing from the fiber state into a manufactured product. All Sunotex textile oils are emulsifiable in water.

SUN COTTON CONDITIONING OILS—Pale mineral oils which condition the cotton. They prevent waste by cutting down excessive amounts of "fly" or fine air-borne particles of lint.

SUN ASBESTOS FIBER CONDITIONING OIL—Used for spraying on the asbestos during processing. Fibers are not so readily damaged or broken down into harmful dust when this product is used.

SUN CORDAGE OILS—Are adaptable in various formulae used by cordage manufacturers. They are selected products which are highly compatible with additives.

CIRCOSOL—2XH (Rubber Processing)—An elasticator and processing aid for GR-S particularly.

CIRCO LIGHT PROCESS OIL (Rubber Processing)—A processing aid and excellent softener for natural rubber, natural rubber reclaims, and neoprene synthetic rubber particularly. Used for GR-S to some extent.

SUNDEX 53 (Rubber Processing)—An inexpensive product suitable for processing GR-S and blends of GR-S and natural rubber. An established outstanding processing aid for footwear rubber stocks.

CIRCOMAR-5AA (Rubber Processing)—A black colored product used in reclaiming natural rubber scrap. Used also as substitute for asphalt fluxes in processing natural and GR-S rubber. Free-flowing at room temperature.

SUN LEATHER OILS—Mineral base leather oils. Used for obtaining the desired tensile strength, proper temper and a controlled moisture content. They maintain a light even color . . . mix well . . . distribute evenly.

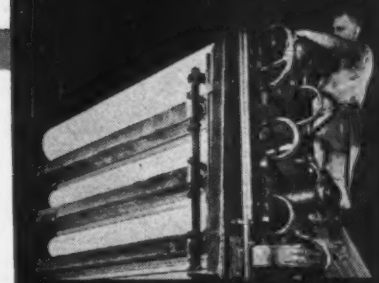
SUN MISCELLANEOUS INDUSTRIAL PRODUCTS

SUN SPIRITS—For the thinning of paints, varnishes, and enamels. Also for metal cleaning. This product is a pure water-white petroleum solvent and is free of corrosive sulphur.

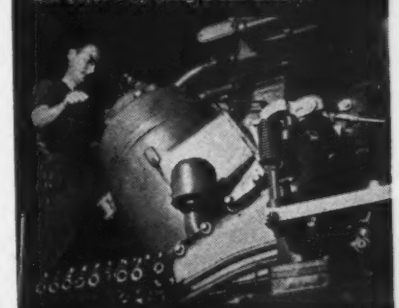
SUN WAXES—Used in packaging, sealing, coating, waterproofing and for numerous manufacturing and chemical processes.

RUBBER MANUFACTURER saved $3,000 a year with a Sun Processing Aid.

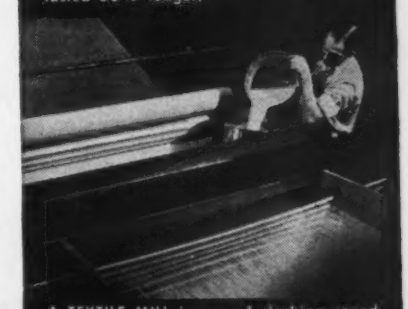
ALUMINUM PARTS MANUFACTURER increased output 43% with Sun Cutting Oil.



PAPER MILL slashed annual lubrication bill $2,874 by using a Sun Grease.



POWER PLANT found Sun Diesel Lubricant lasted 50% longer.



A TEXTILE MILL increased slashing speed 60% by adopting a Sun Processing Oil.

PRODUCTS

SUNOCO

NPTA Convention Closes; Elects A. W. Towne

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ing the same group, R. G. Luff, of the D. L. Ward Company, Philadelphia, remains as vice-president for the wrapping paper division, and J. O. Bulkley, of Bulkley Dunton & Company, remains as treasurer.

The opening convention session, held in the Jade Room, on Monday morning was a Twine Meeting, held with C. A. Shaw, of Whitney Brothers, Boston, presiding. There were several speakers who posted a large number of merchants on present conditions in the cotton, jute, twine and sisal industries. Presenting the cotton viewpoint were George Hart of Cleveland Mill & Power Co. and Robert Adair of January & Wood Co. Robert Utes, president, American Manufacturing Co., spoke on jute and sisal conditions and H. G. Travis, of Ludlow Mfg. Co. and George Mosher of Columbian Rope Co. spoke on jute.

W. E. Long, Neal & Hyde, Inc., Syracuse, N. Y. and former president of the Wholesale Drygoods Institute told convention gatherers at Tuesday's open session that in the business of distribution the nation's wholesale industry enjoys a total annual volume of nearly one hundred and seventeen billion dollars. This is considerably in excess of that of all retailing. In cooperation with the Chamber of Commerce of the United States and spurred by their determination to distribute from 30 to 50 per cent more consumer goods than has ever been distributed in the history of our country, textile wholesalers have taken the measure of their responsibility and are proceeding step by step with the Check List Program for Modern Distribution, launched by the Wholesale Dry Goods Institute. This program embraces six major activities: 1. Modernization of Wholesale Sales Rooms. 2. Promotion of effective Manufacturer-Wholesaler teamwork. 3. Adoption of Basic Stock Merchandising. 4. Promotional instead of Hit or Miss Selling. 5. Modernization of Wholesale Operations. 6. Development of Comprehensive cooperative Retailer Service.

"Like many other things in life, it is not only the practical reality which counts," said Long, "but the impression created, the knowledge that industry-wide, a new and progressive spirit has been kindled, will do much to further the entire program. The facilities of wholesale organizations to provide current and detailed market information and to serve individual markets intensively and economically must be geared, friction-free, to the vast new production capacity of the industry.

"We have a selling job to do all along the line. Billions of consumer dollars are going shopping. Savings banks are bulging. The consuming public is out of everything. Further, he said, there is another reason why we have to have a selling job; that is, to get a wider spread in the net profit. There was a time when we increased the spread in the net by lifting the mark-up, the gross. Competition will not permit us to do some of the things we used to do in the days gone by. There isn't much chance, then, of looking for a wider spread in net profit by attempting a higher mark-up. There was a time when we could get a wider spread by reducing expenses. Try it today! You have expense you didn't ask for and a lot of people in days gone by never realized you would ever have. The only thing left that we can do is to step up the selling tempo."

G. E. Carpenter
Retires as NPTA President

In opening the meeting President Carpenter referred to his cooperation with the Congressional newsprint committee and he wished the committee success as he urged merchants to assist it in the distribution of any available tonnage in order that it might be in a position to handle distress cases among publishers of small publications. He also referred to the recent election of N.P.T.A. Counsel Javits to Congress and paid tribute to the memory of Jay Hayes, of the association staff, who died recently.

In his committee report on Operating Efficiency, W. G. Leathers outlined a new program designed by NPTA for the benefit of its members. The first study selected by the committee on operating efficiency Materials Handling, should be in report form and in the hands of members by April 20 or earlier. A study covering Office Procedure is under way and later studies turning the spotlight on specific phases of operation are contemplated. To bring this service to its members, NPTA has engaged on Industrial Engineer, E. Jay Huss, now a member of the Association staff. Leathers expressed the hope that the report on Office Procedure would be ready for the fall convention in Chicago. Members of the Committee on Operating Efficiency include R. G. Luff, D. L. Ward Co., Philadelphia; E. P. Magel, Crescent Paper Co., Indianapolis; R. W. Miller, The Central Ohio Paper Co., Columbus; and W. G. Leathers, NPTA.

Senator Bridges opened the first general session on Monday afternoon by saying that it was not possible to place all the blame for labor difficulties on labor, nor on management, but pointed out one-sided labor laws have aided and abetted labor and are mostly responsible for the conditions today. He said recommendations will be made to correct the Wagner Act to allow free speech for both the unions and employers, cure jurisdictional disputes, mass picketing, guarantee the same penalties for labor unions as for employers, make certain a secret ballot on strikes, make possible financial reports from unions, and prohibit organizations of foremen.

The proposed law, he said, will approach the problem of nationwide strikes such as were threatened in the coal and railroad industries and now hang as a threat in the telephone industry.

As chairman of the appropriation committee, he said, he has a terrific responsibility and the national policy of spending has been a matter of great concern, as appropriations have increased from 36-billions in 1933 to 118-billions in 1942, "and the President thinks that it is necessary to continue a program of spending and has asked for an appropriation of 37½-billions, which is 10 times the amount of the peacetime budget."

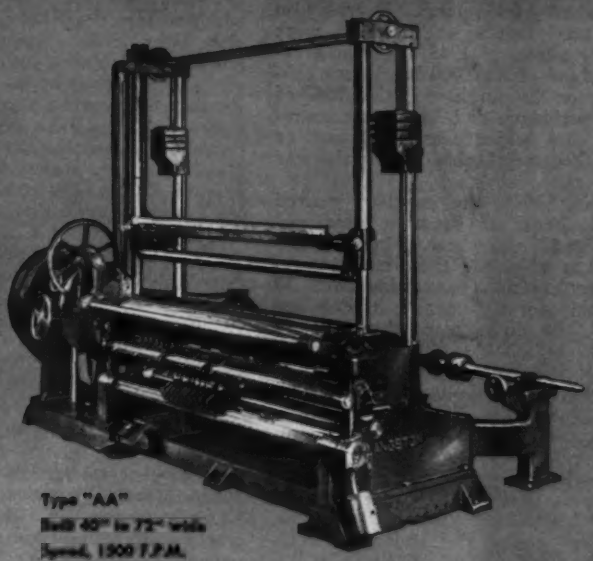
The number of labor disputes since the war, he noted, was another record, but one of which we could not be proud. He stated that if the portal to portal suits were successful "they would threaten free enterprise itself" and "I am confident that we will devise labor laws which will satisfy labor and management in a period that demands unity, as the constant bickering and trouble is inexcusable."

He enumerated the scores of Government agencies and pointed out one bureau which had 30,000 persons engaged in expounding the truth. "The Government needs truth, but it does not need 30,000 persons to expound it," he said. He said this country has a national debt of 260-billion, 5-billion of which is represented by interest alone in the next budget. "This amount is greater than all the other countries in the world put together, yet we have but 9% of the world's resources."

Senator Bridges then reviewed the events leading to the present request for financial support for Greece and Turkey and said he would go along with the President as far as those two countries are concerned but would not go along with the inconsistencies in the administration's foreign policy such as sending food and supplies to Yugo-Slavia while it shot down our airmen in times of peace.

A CLEAN CUT

A SHEAR CUT



Type "AA"
Built 40" to 72" wide
Speed, 1500 F.P.M.
Minimum cut 3/4"

LANGSTON

SLITTERS AND ROLL WINDERS

MANY IMPROVEMENTS HAVE BEEN INCORPORATED INTO ALL RECENT LANGSTON SLITTERS AND ROLL WINDERS. AMONG THEM, A BETTER METHOD OF SLITTING.

THE FRONT, OR FRICTIONALLY DRIVEN SLITTER, IS MOUNTED ON A BALL BEARING HOUSING AT THE END OF A FLAT STEEL SPRING, THE OTHER END OF WHICH IS ADJUSTABLY CLAMPED TO THE FRONT SLITTER HOLDER SHAFT. THIS ADJUSTMENT CONTROLS OVERLAP OF BLADES AND ALSO COMPENSATES FOR REDUCED DIAMETER FROM GRINDING BLADES. THE FRONT SHAFT, THROUGH A SIMPLE AND CONVENIENT CONTROL, IS MOVABLE BOTH RADIALLY AND LATERALLY. ALL SLITTER BLADES CAN BE DISENGAGED SIMULTANEOUSLY ALONG A HORIZONTAL PLANE, THEN SWUNG OUT AND AWAY FROM THE REAR SLITTERS. WITH ALL FRONT SLITTER BLADES BEING MOVED AT ONCE, NOT ONLY IS THREAD-UP TIME GREATLY REDUCED BUT THE UNIFORM ADJUSTMENT OF ALL BLADES INCREASES SLITTER LIFE—REDUCES MAINTENANCE AND DOWN-TIME.

PRACTICALLY ALL LANGSTON SLITTERS NOW IN SERVICE CAN BE READILY EQUIPPED WITH THIS IMPROVED METHOD OF SLITTING. WE'LL TRY TO WORK YOUR NEEDS INTO OUR STILL STRAINED PRODUCTION SCHEDULE.

SAMUEL M. LANGSTON COMPANY, CAMDEN, NEW JERSEY

Holyoke Makes Ready To Control Floods

HOLYOKE, Mass.—A group of Holyoke paper manufacturers, army engineers and city officials met in the office of Mayor Henry Toepfert recently to iron out any last minute difficulties in the rights of way that the government needs before it can proceed with construction with the flood wall extension project.

Many of the agreements giving the engineers access to industrial property in the lower section of this city have already been drawn up and are ready for signatures, while still a few others have to be revised in terminology slightly. However, Col. Robert E. York, assistant to the New England district engineer, said he was assured that all agreements will be ready within two weeks. Col. York explained that contracts cannot be let until all rights of way are assured.

One problem that bothered paper manufacturers was what guarantee they had from the government that raceways at the mills would be shut down only for the specified number of days agreed to already, and Col. York informed the group that the contractors, under penalty, must finish a job in a certain number of days, and if not, the army engineers could step in and have it finished at the concern's expense, thereby assuring the early resumption of raceway use.

Paper manufacturers attending the conference included: Joseph E. Holmes, Crocker-McElwain Co., E. C. Tucker, Chemical Paper Mfg. Co.; Ferdinand H. Willemain, Charles L. Kirkpatrick, George E. Scully, American Writing Paper Corp.; Robert M. Swaney, Franklin Paper Co.; James N. Logan, Newton Paper Co.

Eaton Moves Nascon To Pittsfield

PITTSFIELD, Mass.—The Eaton Paper Corporation which recently purchased Nascon Products, Inc., New York, manufacturers of business and social memorauda and date books will add approximately 50 new employees to its staff, in addition to a few key personnel to be brought here from the New York plant. As soon as possible, all the Nascon manufacturing and office equipment will be moved to Pittsfield. The new plant will be housed in one of the company's factories on Mill Street now being used for storage by Eaton's and other local firms.

The purchase of the New York firm marks the third acquisition by the Pittsfield corporation since 1934. In that year, Eaton's bought the nationally known Whiting & Cook Stationery Co. of Holyoke and in the following year acquired the business of Laura Lee Linder, Inc., New York, manufacturers of fine leather accessories.

Eaton Sales Rise As Profit Sags

PITTSFIELD, Mass.—The Eaton Paper Corporation reported profits before taxes in 1946 were less than 1945 at the annual meeting of the stockholders and board of directors. It was also announced that sales for 1946 were slightly ahead of 1945 and that a reserve fund of $280,000 has been established for the purchase during 1947 of new machinery and equipment to replace that which was worn out or which became obsolete during the war years.

During 1946, the company retired 10,604 shares of its prior preferred stock at $25 per share. The company also was able, for the first time, to declare dividends amounting to $1.50 per share for the year on its common stock. The directors of the company take an optimistic view of the business outlook for the current year.

Herbert F. Boynton, Winthrop M. Crane, Laurence R. Connor, George P. Clayson, Jr., and William H. Eaton were reelected to the board of directors. Officers reelected were William H. Eaton, chairman; George P. Clayson, Jr., president; James Craig Smith, treasurer and clerk; and George O. Hawley, assistant treasurer.

Magnolia Interests Study Georgia Pulp Supply

BAINBRIDGE, Ga. — Negotiations are being continued between members of the Bainbridge Junior Chamber of Commerce, the Chamber of Commerce and other interested parties and representatives of the Magnolia Timber & Development Corporation, of New Orleans, La., concerning the location of a large pulp and paper mill.

Leo Stack, Magnolia president, has established an office in the city hall and is interviewing timber owners. The timber leases offered by the company provide that failure to establish a pulp mill in or near Bainbridge will constitute a violation of the lease by the corporation.

Congress Drops Biennial Catalog

WASHINGTON, D. C. — Elimination from publication of a biennial catalog of Government publications has been decided on by the Congressional Joint Committee on Printing. Decision to omit the publication was influenced by the prospective saving of $60,000 per issue, and the information that the monthly catalog with an annual index would meet official requirements.

Package Machinery Contract Grants Five Holidays

SPRINGFIELD, Mass. — A new labor contract which has just been signed at the Package Machinery Company between the United Electrical, Radio and Machine Workers Union, CIO, and the management contains a ten-cents an hour increase in wages and five paid holidays. The plant employs about 750. The holiday pay is a new concession.

Kimberly Foremen's Club Admits New Members

KIMBERLY, Wis. — Fifteen supervisors from the Atlas mill, Appleton, of Kimberly-Clark Corporation, were admitted into the Kimberly Foremen's club after a dinner meeting at the Kimberly clubhouse recently. They are Carl Broughton and Richard Roudebush, Neenah; Thomas M. Ryan, Green Bay; and John Fourness, Louis Getschow, Frank Kitzinger, Arnold A. Meyer, John H. Mullen, Richard Nabbefeld, Robert Peerenboom, Charles W. Petters, Joseph P. Ryerson, Albert St. Pierre, Clifford C. Williams and A. R. Ellis, all of Appleton. C. W. Kokke, Kimberly, also joined the club.

The club heard a talk by R. E. Lamers, on the Chicagoland management conference. A. J. Courchane reported that the new safety contest will open April 7 and will run for six months.

Forest H. Werling, staff operating superintendent; C. A. Fourness, assistant general superintendent; and James Murphy, crepe wadding, all of Neenah, discussed the development of crepe wadding operations. Nels Rasmussen, paper mill superintendent, and Herbert Stork, finishing room foreman of the Niagara, Wis., mill were guests. About eighty foremen attended the dinner.

Paper and Cordage Men Turn Out in Force

PHILADELPHIA—A good deal of enthusiasm has been manifested and there has been marked businesslike action among the members of the Philadelphia Paper & Cordage Association with the result that the luncheon meeting held last week in Strawbridge & Clothier's restaurant had the largest attendance in the history of the association. C. Melvyn Young, retired banker who has spent considerable time in Russia, was guest speaker. Mr. Young gave a resumé of political and economic life in general in the Near East as well as Russia.

The next luncheon meeting will be held April 17th at Strawbridge & Clothier's when Corbett McClain, assistant district attorney of Philadelphia, and a former colonel in the army, will address the members.

Wisconsin Paper Gains

WAUSAU, Wis. — Wisconsin is producing more paper than ever before, with 791,176 short tons of orders in January of this year showing a sharp gain over the 682,014 short tons in the same month in 1946, according to Robert A. Ewens, manager of the Milwaukee office of the Wisconsin Manufacturers' Association. Business in the paper industry this year will exceed the record set in 1946 by 10 to 20 percent, he predicted.

FINANCE

International Net Rose Sharply in 1946

NEW YORK — The International Paper Company reports new high marks in sales, profits, and tonnage for its operations in 1946.

A consolidated net profit of $31,179,048 was reported late last week for 1946 by the International Paper Company and its subsidiaries, compared with $8,546,078 earned the year before.

Total sales and other income amounted to $295,184,061 last year, compared with $240,021,551 in 1945. During 1946 the company and its subsidiaries produced a total of 2,671,603 tons of paper, container board and pulp, compared with 2,488,768 tons in 1945, an increase of more than 7 per cent.

The profit for last year, which is after all charges and includes a special and non-recurring credit of $1,126,669, is equivalent to $7.98 a share on the 3,560,000 common shares outstanding. The net for 1945, which equaled $2.10 each on 1,863,862 common shares, included $850,174 extraordinary credit but excluded $2,429,527 earnings of foreign subsidiaries carried to reserves.

The special and non-recurring credit in 1946 consists of $1,331,729 profit on sale of properties and woodlands and realization on investment previously written off of $214,310, less premium and unamortized discount and expense on bonds retired of $419,371. In 1945 the special credit represented $1,748,900 profit on sale of properties and investments, from which $564,701 was deducted for premium and expenses and amortized discount on bonds retired and $334,025 accelerated amortization of emergency facilities applicable to prior years.

Directors have approved the expenditure during 1947, with some carry-over into 1948, of $22,000,000 in the United States for additional capacity, mill improvements and purchase of timber lands. Approximately $5,000,000 of this will be provided from the current year's depreciation and depletion reserves. The balance of $17,000,000 has been set aside as a fund out of which these expenditures will be met as they materialize, the report explained.

The appropriations provide for a new paper machine with an estimated capacity of 43,550 tons per year to be constructed at the Louisiana mill.

Major changes will be made at the Camden mill to increase the capacity of that plant by 48,575 tons a year.

National Gypsum Reelects Slate

BUFFALO, N. Y. — All officers and directors of the National Gypsum Company of Buffalo were reelected at the annual stockholders meeting here. L. R. Sanderson, director of construction and reconversion, reported completion of several projects in the firm's $20,000,000 post-war expansion program.

Union Bag Votes Extra Dividend

NEW YORK—Directors of Union Bag & Paper Corporation last week declared an extra dividend of 25 cents per share on the capital stock of the company, payable April 15, to stockholders of record April 7.

B. C. Pulp and Paper Floats $6 Million

VANCOUVER, B. C.—Six million dollars in new financing, of which over $4 million will be for refunding purposes and the balance available for general purposes is announced by British Columbia Pulp & Paper Company Ltd., of Woodfibre and Port Alice, B.C. Public offering of $4 million in 20-year 3½ percent bonds was made at 100 and accrued interest. The balance of $2 million are serials maturing April 1, 1949-1955.

The intention of the company, it is stated, is to call its presently outstanding 6 percent first mortgage bonds outstanding to amount of $2,795,000 and its 7 percent general mortgage bonds outstanding to amount of $1,294,300 on May 1.

The refunding will effect a substantial saving in interest charges and thereby improve the position of the preferred shares. It is officially reported that combined assets will amount to $12,368,000, or more than twice the amount of the bonds to be outstanding. Earnings for the past eight years, after depreciation and depletion averaged $1,258,373 or about six times maximum annual interest requirements on the new bonds. The 1946 earnings on the same basis were more than 10 times interest requirements.

There is a large demand in the United States for the company's big output of dissolving pulp, used in the manufacture of rayon, cellophane and plastics. Combined annual capacity of its two mills is 135,000 tons. About 75 percent of current production is reported to be dissolving pulp and the balance high-grade bleached pulp for use in fine paper making.

FINANCIAL RECORD OF THE WEEK

New York Stock Exchange

High, Low and Last for Week Ending March 29, 1947

STOCKS

	High	Low	Last
A. P. W.	5½	5½	5½
Armstrong Cork Co.	50¾	49¼	50
Armstrong Cork Co., pf.	105½	105	105
Celotex Corp.	30½	28⅝	29⅛
Celotex Corp., pf.	21	20¾	21
Certain-Teed Products Corp.	18⅛	16	17⅜
Certain-Teed Products Corp., pf.	....	....	....
Champion Paper & Fibre Co.	24	22¾	23
Champion Paper & Fibre Co., pf.	110	109¼	110
Congoleum Nairn Co.	27½	26⅞	27⅜
Container Corp. of America	44½	41½	44
Crown Zellerbach Co.	29¾	28	28½
Crown Zellerbach Co., pf. 4.20	107¼	106⅛	106⅛
Crown Zellerbach Co., 4 pf. 4	116¾	116	116¾
Dixie Cup Co.	32¼	32	32¼
Dixie Cup Co. A	54	53½	54
Flintkote Co.	32⅜	30⅜	32⅛
Flintkote Co., pf.	107¾	107¼	107½
Robert Gair	7¼	6⅝	7⅛
Robert Gair, pf.	20½	20⅜	20½
International Paper Co.	48⅞	45⅞	48⅝
International Paper Co., pf.	105	105	105
Johns Manville Corp.	125½	121	125
Johns Manville Corp., pf.	117½	117½	117½
Kimberly-Clark Corp.	26	24¾	25½
Kimberly-Clark Corp., pf.	108½	108½	108½
Mac Andrews & Forbes	37	37	37
Mac Andrews & Forbes, pf.	....	....	....
Marathon Corp.	25¼	24	25¼
Mead Corp.	21⅞	20¼	21½
Mead Corp., pf. 4¼	103½	102½	103½
Mead Corp., pf. 2	48	48	48
National Container Corp.	40¼	37¼	39⅛
Paraffine Companies, Inc.	72	70	72
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	23½	22¾	23
Rayonier, Inc., pf.	37½	37⅛	37⅛
Ruberoid Co.	51½	50	51
Scott Paper Co.	43½	42⅞	42⅞
Scott Paper Co., pf.	99¾	99¼	99¾
Sutherland Paper Co.	44	42¾	44
Union Bag & Paper Corp.	32¾	29⅞	32½
United Paperboard Co.	17¾	16½	17¾
U. S. Gypsum Co.	104	102	102
U. S. Gypsum Co., pf.	196½	193	196½
West Virginia Pulp & Paper Co.	42	41	41⅜
West Virginia Pulp & Paper Co., pf.	112	112	112

BONDS

Abitibi Pulp & Paper Co., 5s '53	....	....	....
Celotex Corp. 3¼s '60	104	104	104
Certain-Teed Products Corp. 5½s '53	....	....	....
Champion Paper & Fibre Co. 3s '65	103¼	103¼	103¼
Mead Corp. 3s '66	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending March 29, 1947

STOCKS

	High	Low	Last
Great Northern Paper Co.	43	40½	43
Hummel Ross Fibre Corp.	31	30¼	31
St. Regis Paper Co.	9⅜	9	9
Taggart Corp.	8⅞	8⅞	8⅞

BONDS

American Writing Paper Co. 6s '61	101½	101½	101½

M & O Net Income Up 25 Per Cent in 1946

MINNEAPOLIS — Net sales of the Minnesota and Ontario Paper Company for the year 1946 were $29,464,110 compared with the net sales for the year 1945 of $24,479,811. The net income, after taxes, for the year 1946 was $2,190,207 ($1.69 per share on 1,292,522 shares of the company's stock outstanding at December 31, 1946) compared with net income, after taxes, for the year 1945 of $1,549,042 ($1.15 per share on 1,344,543 shares then outstanding).

The funded debt of the company outstanding at December 31, 1946, was $2,842,050 in principal amount not including $157,950 falling due June 1, 1947, and classified as a current liability. During the year the company retired $3,000,000 of its funded debt.

The working capital position of the company upon a consolidated basis is regarded as presently adequate; and the distribution of working capital among the several companies is likewise regarded as adequate. In connection with the retirement at June 1, 1946, of $3,000,000 of the funded debt of the company, funds were in part provided through the redemption by The Ontario-Minnesota Pulp and Paper Company Limited (principal Canadian subsidiary) of $1,800,000 (payable in U. S. currency) in principal amount of its First Mortgage Bonds which were held by the company.

The company's program for capital additions and betterments to its plants and to plants of its subsidiaries, initiated in 1945, contemplated expenditures of approximately $10,300,000, of which $5,200,000 has heretofore been expended upon projects which have been completed or which are in process. At December 31, 1946, the company had made additional commitments under this program aggregating $2,400,000 which are not reflected upon the balance sheet. During the year the postwar requirements fund in the amount of $1,525,305 was made available to aid in meeting the cost of capital additions and betterments included in this program.

The Price Adjustment Board (having jurisdiction of the renegotiation of war contracts and sales) determined that no excessive profits arose out of the sale of materials furnished in 1945 for war purposes.

Hampden Glazed Paper Reports Good Year

HOLYOKE, Mass. — Ralph N. Fowler was reelected president of the Hampden Glazed Paper and Card Company at its annual stockholders meeting. Other officers reelected were: George B. Fowler, vice-president; James A. Leyden, vice-president in charge of sales; Rufus F. Blount, treasurer; and Esther S. Mason, secretary and clerk.

The board of directors was reelected. It consists of Ralph N. Fowler, George B. Fowler, James A. Leyden, Rufus N. Blount and John L. Bagg.

Operations for 1946 were reported as satisfactory. New equipment is being installed at present which will enable the company to add materially to its extensive line of high grade box covers and other specialty papers.

Considerable rehabilitation work has been done to the plant, including the construction of a new modern, fully equipped laboratory for plant control and research.

Eastern Corporation Adds New Names to Directorate

NEW YORK—At the annual stockholders' meeting of Eastern Corporation held on March 24th in Bangor, Me., the following directors were added to the board: D. S. Gottesman, President of Central National Corporation, Robinson Verrill of the law firm of Verrill, Dana, Walker, Philbrick & Whitehouse of Portland, Maine, Louis W. Abrons of New York, a director of Beaunit Mills, Inc., Wilson-Jones Company and other corporations, and Ira D. Wallach of Gottesman & Company, Inc. Directors re-elected were: Clyde B. Morgan, Charles L. Hildreth, Harold C. Keith, Frank Kley and B. I. Sheldon.

At the meeting of directors following the stockholders' meeting, Clyde B. Morgan, the President, and the other officers of the corporation, were re-elected.

Eastern Corporation is one of the largest manufacturers of fine papers in the country, with mills at South Brewer and Lincoln, Me. The operations are completely integrated and the company has an annual capacity of over 70,000 tons of pulp and more than 50,000 tons of paper.

Flintkote Sales Runs Ahead Of 1946 For First Quarter

BOSTON—Sales of Flintkote Company for the first quarter of 1947 will run aout fifty per cent greater than in the like period of 1946, President I. J. Harvey, Jr., said. In Boston to preside at the company's annual meeting, he said the increase in sales is due to the fact that new facilities built by the company are now coming into production.

Last year was the best in the company's history. Sales were $52,579,605, compared with $37,023,415 in 1945, while net profit was $3,710,723, compared with $1,643,285 in 1945.

The year 1947 looks very encouraging, Mr. Harvey said, for the company has the biggest backlog of business in its history.

Stockholders may look forward to more liberal dividend treatment this year, Mr. Harvey declared. Flintkote paid a total of $1.25 a share on the common stock in 1946, compared with 90 cents a share in 1945.

Kimberly-Clark Nets $3.15 Preferred Share

NEENAH, Wis. — Net sales and consolidated net income of Kimberly-Clark Corporation made great advances in 1946, a year "unprecedented in corporate expansion" of the company, it was disclosed in the annual report to stockholders.

Net sales totaled $66,376,574, compared with $56,882,245 in 1945, and consolidated net income, after all charges and deductions of regular preferred stock dividends amounted to $3,776,615, or $3.15 a share on 1,199,520 shares outstanding after the two for one common stock split last August. Equivalent earning in 1945 would be $1.65 a share on net of $1,985,691.

Major acquisition in 1946 was the purchase of a large plant in Memphis, Tenn., from the government. "A still broader activity, however, had its beginning at Terrace Bay, Ontario, where the corporation began construction of a new chemical pulp mill and a modern town on the north shore of Lake Superior," Cola G. Parker, president, reported to the stockholders. The entire project is expected to be completed in 1949.

The report observed that the company had grown immensely since its inception 75 years ago. As against one mill in 1872 producing not much more than 600 tons a year, it now has seven mills producing more than 181,000 tons of pulp, 186,000 tons of book paper and 84,000 tons of cellulose wadding and, in addition, a mill producing 18,000,000 rolls of finished wallpaper. Direct employment today is 8,000, compared with about 5,000 stockholders.

The corporation's financial condition "continues to be satisfactory," the report said. It showed net working capital last December 31 of $16,936,948, compared with $16,776,684 a year earlier.

A continued undersupply of paper and pulp for a considerable time is foreseen in the report, despite production in Canada and the United States "at a rate never before attained."

Smith Awards Bonuses For Suggestions

LEE, Mass. — John T. Kennedy has been awarded $90 by Smith Paper, Inc., for a suggestion on pressure on a press lever. Robert C. Munson received $72.80 more for a suggestion on an extra wind-up shaft. He had already received a partial payment of $10 at the last committee meeting.

Other awards were made for the following suggestions:

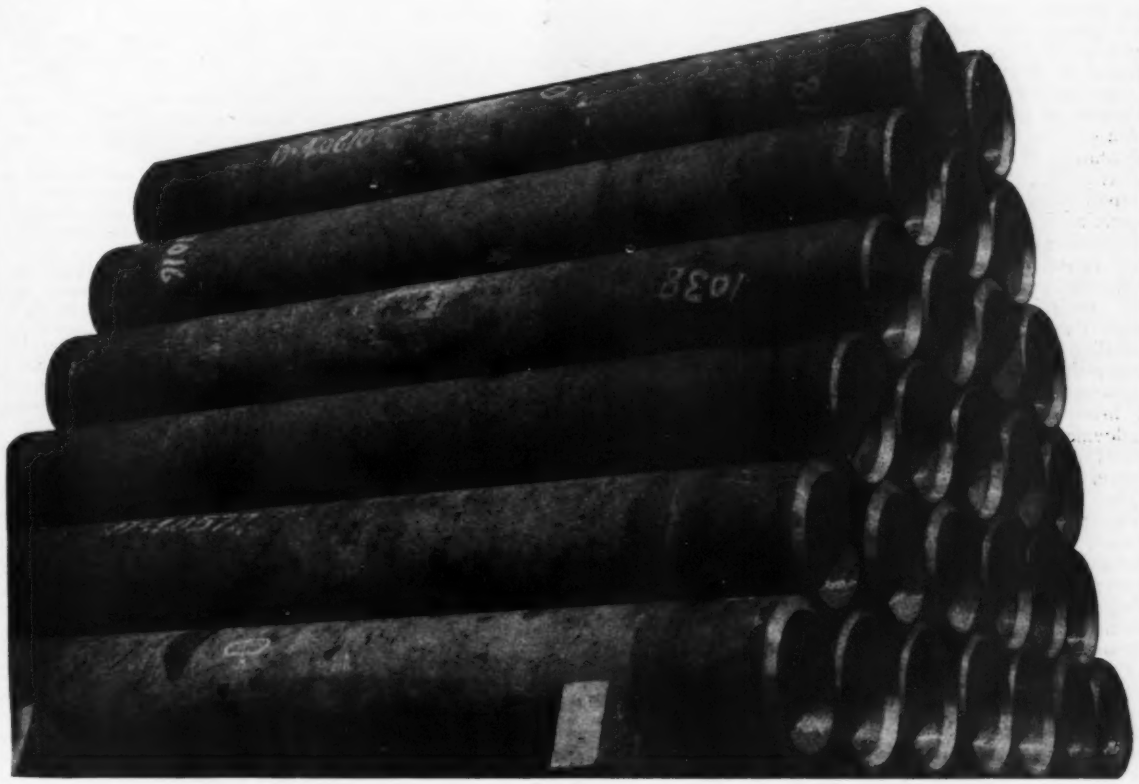
Raymond Fillio, $24.58 for hook to lift hitch roll on a paper machine; James Navin, $10 for a window scaffold; Wilfred Bontel, $10 for storage of stock in the beater room; Alexander Blache, $7.80 for a portable tool cabinet; Richard Dacey, $5 for removing sets from a paper machine.

Centrifugally Cast

ACIPCO STAINLESS STEEL

Tubes and Parts

Plain carbon and corrosion- and heat-resisting alloy steel tubes and parts produced to close specifications from steel melted in electrical furnaces under rigid production controls.



An order of Heat-resisting alloy steel Retorts having 28% Chrome — 15% Nickel. Butadiene Furnace Tubes with 25% Chrome and 20% Nickel and other stainless steel tubes have also been supplied. All tubes cast in 16-ft. lengths. Diameters from 3½" to 50".

Also manufacturers of Corrosion-resisting Bolts of Alloy Cast Iron and Ni-Resist Iron.

Write for New Catalog

AMERICAN CAST IRON PIPE COMPANY

Birmingham 2, Alabama

B. C. Mills Improve Safety Performance

NEW WESTMINSTER, B. C.—Improved safety in the British Columbia pulp and paper industry was the central theme of the third semi-annual conference of the British Columbia Pulp and Paper Industry Safety Association held March 6th and 7th. Twenty-two representatives from ten manufacturing companies formed the largest conference to date while meeting in the Hotel Russell as guests of the Westminster Paper Company. In comparing the 1946 accident records with those of 1945, all delegates were able to report that there had been considerable improvement in their accident experience. Several reported that over the one year period, accidents in their plants had been reduced by as much as 50 percent. All delegates attributed much of the success achieved to the hard-working efforts and co-operation of union officials.

Major topics discussed were: rehabilitation of injured employes; first aid training; and employe education through posters, film meetings, letters, competitions and training classes.

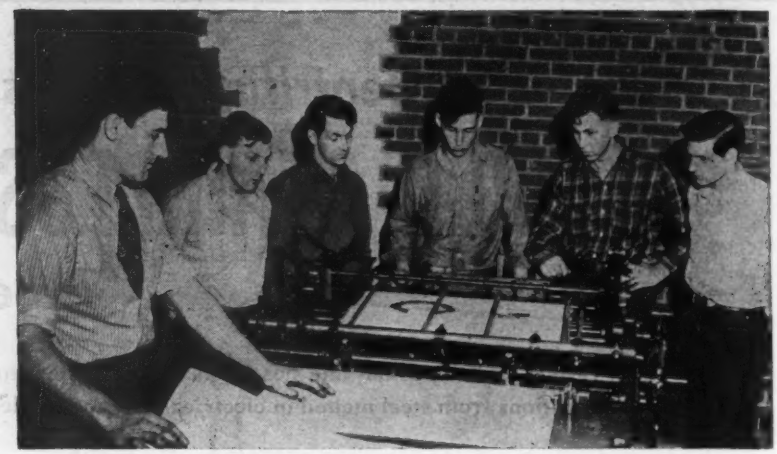
Rehabilitation, that is, planning the early return to suitable light work of an injured employe, was decided to be very desirable, especially in cases where the injury involved permanent disability. One desirable effect achieved from proper rehabilitation is from the psychological standpoint in that when an injured worker is given gainful employment, it overcomes certain mental anxiety and promotes prompt recovery.

The conferees agreed that for a safety program to be really effective it must reach the individual worker. Discussion took place on the various ways of reaching and impressing the safety message upon the individual. Among means suggested were that foremen should follow up constantly on unsafe practices, that foremen should investigate all minor and lost-time injuries in their own departments personally, and take necessary corrective action. All practical suggestions put forward by employes should be installed promptly. By the use of these methods, the individual would be impressed that the company means safety first and will increase his own efforts to work safely.

H. L. Hansen, special representative of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers stated that the Union always stood ready to co-operate fully with the companies in carrying out their safety programs. He suggested that all companies should have new machines inspected by the plant safety committee and the Workmen's Compensation Board before being put into operation.

The group was fortunate in being able to present Adam Bell, Chairman of the Workmen's Compensation Board, and C. W. Pritchard, Commissioner, as special guests. Their presence gave delegates an opportunity to discuss some of their problems concerning the operation of the Workmen's Compensation Act. J. H. McLean, Inspector for the Board also spoke to the group and congratulated them upon their fine work and pointed out several ways in which they could make their safety programs more effective.

At the completion of the conference, delegates were given the opportunity to view the operations of the Westminster Paper Company. Tentative date for the next conference is mid-August at the Port Alice mill of the B. C. Pulp and Paper Co. Ltd.



WARD PAPERMAKERS LEARN HOW IT'S USED

MERRILL, Wis.—Papermakers at the Ward Paper Company voluntarily have spent two evenings a week this winter studying paper problems that most frequently confront printers. The class started in December when a practical course in printing was launched for Ward's group of apprentice salesmen. Mill foremen were also invited to sit in. When the news made the rounds of the mill, some thirty employes representing all divisions indicated an interest in learning something about the use of the paper they have a hand in manufacturing.

Printing specialist Don Steinbach of the Wausau Vocational School installed a miniature printing press and outlined a course of lectures. In the view above he shows members of the Ward Paper Company class how tapes carry sheets through a flat bed Miehle press Papermakers tried their hand at feeding the press and learning functions of its operations.

Through the co-operation of plants in Wisconsin and Illinois, selected Ward employes visited with printers who stood beside their presses and talked paper and printing. Ward men studied various types of printing and paper usage in the field. They talked with printing superintendents who explained the damage caused by paper defects and how the lack of uniformity in paper stock cuts down production. Observations gained in print plants were relayed back to the mill for further guidance of the papermakers. D. B. Smith, General Manager of Ward, said that the experiment has helped tremendously in directing attention to the minute details that assure good paper.

Milprint Opens Bag Plant On the West Coast

MILWAUKEE, Wis.—Milprint, Inc., discloses the completion of its new West Coast specialty bag plant at Vancouver, Washington. Charles A. Westberg, of Milwaukee has been selected to direct the activities of the plant which, at first, will concentrate on the printing and waxing of Glassine paper bags of the type produced for potato chips. Later on, Cellophane bags are to be added. When full operations are under way, it is expected that forty to one hundred people will be employed on two shifts.

Superintendents Meet At Kalamazoo

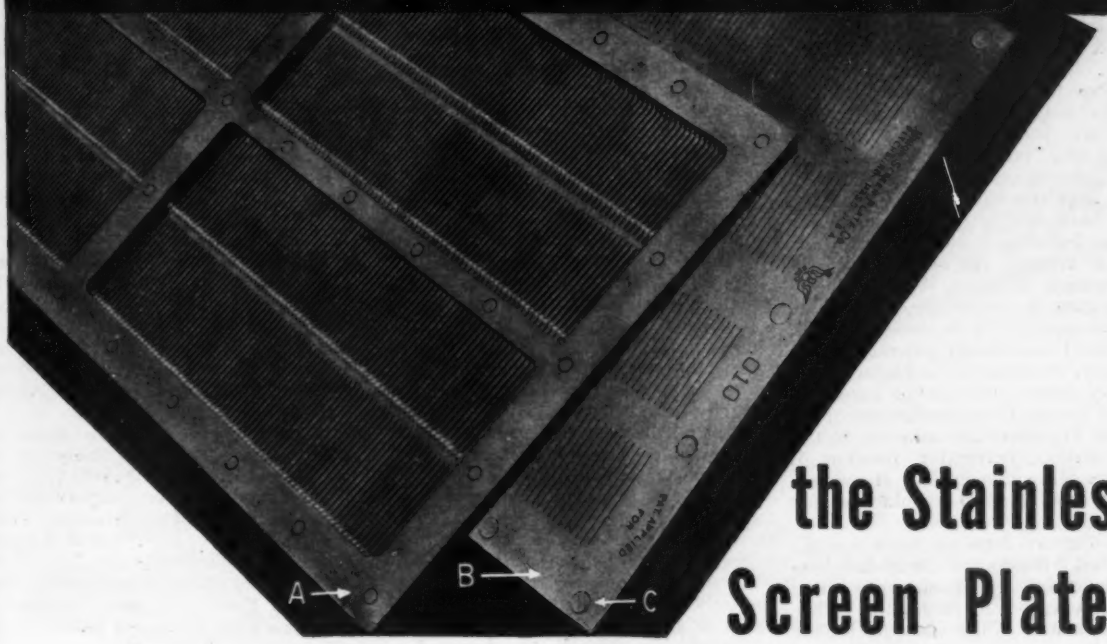
KALAMAZOO, Mich.—Four paper mill officials participated in a question-and-answer session on paper problems at the March dinner meeting of the Michigan division, American Pulp and Paper Mill Superintendents Association in the Park-American hotel. Serving on the panel were Arthur Cole, Rex Paper Company; Glen Sutton, Sutherland Paper Company; Alfred Perlick, Kalamazoo Vegetable Parchment Company, and Ray Barton, Michigan Paper Company. Walter Wolfe, of MacSimBar Paper Company, was chairman.

Preceding the question-and-answer period, a color motion picture, "The Portrait of an Industry," was presented by Heller and Merz of the Calco Chemical division of the American Cyanamid Company.

Frederic C. Clark Moves Office

NEW YORK—Federic C. Clark Associates, consulting engineers, on April 1 moved to new offices at 50 Church Street. Since moving from Boston two years ago, Mr. Clark has found it necessary to add to his staff and secure larger quarters. Henry J. Perry, who has had wide experience in the manufacture of pulp and paper, joined the organization last October.

✳ CORROSIST



the Stainless Screen Plate ·

Here is the Screen Plate you have been waiting for. Rugged enough to withstand normal use without breakage. No rebuilding of your present screens. No "babying" to get full capacity. Standard dimensions. Unlimited life. Made entirely of stainless, corrosion-resisting metals. Proven by 8 years of service in Canadian Pulp and Paper Mills.

CONSTRUCTION: (See photo)

A. FRAME—Butt-welded Monel bars form an amazingly stiff back-bone, reduce flexing.

B. PLATE—1/8" Stainless steel, milled and sawed. Slot "breathing" held to the minimum.

C. RIVETS—Inconel for toughness, set home under 5 tons pressure per rivet.

STANDARDS:

CUT: 4, 5, 6 and 8 slots per inch.

SLOT: Cut .008" and larger.

STYLE: C and E only, drilled or Witham bevelled. Other styles are special.

THICKNESS: 3/8" only.

SIZE: 12" x 43" standard. Other lengths on special order only.

* Trade Mark

UNION SCREEN PLATE COMPANY
FITCHBURG, MASSACHUSETTS

B-W Digesters to be Chrome-Alloy Lined

BARBERTON, Ohio—Five rotary digesters for the manufacture of wood pulp, each weighing 77,000 pounds and coated internally with a chromium alloy liner, will be built by The Babcock & Wilcox Company at its plant here. These are the first alloy-clad digesters the company has furnished for the sulphate paper industry and they are being fabricated for the Camas, Ore., mill of the Crown Zellerbach Corporation of San Francisco. A sixth, slightly smaller, digester is also being built for the same company.

Two features, exclusive with Babcock & Wilcox, are embodied in the construction of these vessels. One is the process by which the alloy lining is resistance-welded to the base metal; the other is the design, patented by the company, covering the construction of a heavy center girth section extending around the entire circumference of the vessels. Trunnions are attached to this girth section, permitting rotation of the digester end over end at approximately one to two revolutions per minute.

The digesters have an inside diamter of 10 feet 3 inches and are 30 feet long over the end flanges. Each end is fittted with a cone, 1-9/16 inches thick. The shell is made of 1⅛ inch steel plate with a heavy reinforced section around the middle 3¼ inches thick.

These digesters with their heavy contents will each have a total weight of approximately 100 tons and must be supported at two points. Because of the high loading on the shell, Babcock & Wilcox has drawn from its experience in designing the reinforcement for the Boulder Dam penstock section, applying a similar method to reinforcing these digesters. It consists of a heavy center girth section extending around the entire circumference, to which the trunnions are attached by welding. This section distributes the stresses in such a manner that they are uniform and of low value, consistent with the ASME unfired code requirements applicable to the entire vessel.

Steam is introduced through one of the trunnions, terminating in an alloy piping arrangement inside the digesters, fitted with a perforated ring for intimate and quick cooking. This piping is made up of chromium alloy—the same as the lining material for the shell. All openings are protected with weldmetal alloy gasket faces.

The use of different type woods and changes in the cooking methods in the sulphate process have made necessary a protective alloy lining in the digesters. Previously, most digesters have been equipped with an increased thickness in the steel and this was satisfactory when the corrosion was not too severe. With increased rates of corrosion under the new process, it becomes impractical to add sufficient allowance as excess steel. The alloy liner is 7/64 inches thick and will be applied over the entire inner surface. This lining will be of B & W Croloy 13 bond, using AISC alloy 405 or 410, which contains thirteen per cent chromium.

Between the steel and the alloy is a thin layer of nickel which prevents carbon migration from the steel to the chromium at fusion temperatures of the resistance welding. By the use of the nickel, grain growth and embrittlement are eliminated at the junction zone of the bond. In addition, the nickel serves to act as a soft ductile layer between the steel and chromium.

This type of lining is integrally bonded over the entire area. The process, developed and used exclusively by the company, is essentially made up of small resistance welds which overlap. Following the welding, the bonded plate is heat treated at approximately 1600 degrees F. This places the chromium alloy in its original corrosion-resistant state and at the same time acts as a positive check on the integrity of the bond. Any area that might not be perfectly attached, shows up as a darker colored area in the form of a blister which allows easy identification and repair of any questionable spots.

Design and construction of these digesters will be in accordance with the ASME Code for unfired pressure vessels, with complete X-ray examination of all butt weld seams, and stress relieved. The vessels are designed to work at 150 pounds pressure and up to 650 degrees F., although the usual temperature will be in the neighborhood of 340 degrees F.

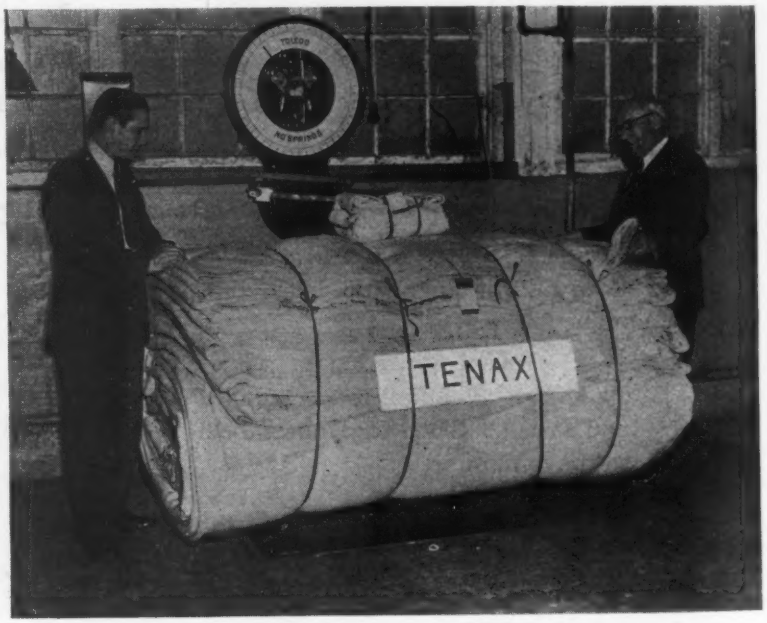
Sprout-Waldron Expands Its Sales Organization

MUNCY, Pa.—H. M. Soars, president and general manager of Sprout, Waldron & Company, manufacturing engineers, has named a new territorial sales manager and added several factory-trained representatives to the regular sales staff. With this expanded organization, Sprout-Waldron hopes to be in a much better position to serve its friends and customers in various sections of the country.

William J. Geist, head of the tobacco machinery division during the past two years, now has the added assignment of territorial sales manager. He will be responsible for the training of new district sales representatives and will coordinate existing general sales efforts.

Harry C. Lee has been appointed district general sales representative in Virginia, North and South Carolina. H. T. Young has been assigned adjoining counties in Pennsylvania, Delaware, and New Jersey; and Randall Bennett will be active in New York State outside of the metropolitan area.

All of these men have received a thorough home office and factory training.



LEE CELEBRATES ANNIVERSARY AT LOCKPORT FELT

NEWFANE, N. Y.—Raymond Lee, general manager, and his father, William H. Lee, president of the Lockport Felt Company, weighing the largest felt ever made (735 pounds) and the smallest (8 pounds). This largest-ever-made felt to come from Lockport or any other mill will soon be running on the largest paper machine in the country turning out paper board for a leading manufacturer in the middle west. This felt is 242 feet long by 18 feet, 2 inches wide. The making and weighing-in of this interesting and exceptional felt coincided with the 42nd anniversary of William H. Lee's connection with the Lockport Felt Company. When he joined the firm in 1905, the personnel numbered 35, and the equipment one set of 48-inch cards and three looms. Today, the mill has 190 workers, six sets of 60 inch cards and 27 looms.

Over 12 years of drier roll experience have contributed to the many advantages and high standards of the Lukenweld Jacketed Drier Roll. Of welded, double shell, steel plate construction, this superior heat exchanger is produced in a wide range of designs and sizes, with advantages not found in other type rolls.

LUKENWELD JACKETED DRIER ROLLS . . .

1. Have thinner, stronger walls than cast iron rolls—safe with steam pressures up to 350 psi, and more.
2. Can be used in the high temperature range that employs high boiling point, heat transfer liquids.
3. Save power and reduce other operating costs.
4. Assure greater steam turbulence in the roll.
5. Eliminate stagnancy inherent in the low pressure, drum type of drier.
6. Guarantee more uniform face temperature.
7. Speed up heat flow.
8. Insure more production—up to 18% and over.
9. Reduce weight.
10. Give better condensate removal.
11. Guarantee mechanical safety.
12. Hold their shape.
13. Can be made in a wide range of designs.
14. Offer a wide range of sizes to over 18 ft. in diameter.
15. Are an integral piece of steel—no bolts, no nuts, no siphons to work loose.

Complete information on the Lukenweld Jacketed Drier Roll is in Bulletin 358. For a copy, please write to Lukenweld, Inc., Division of Lukens Steel Company, 369 Lukens Building, Coatesville, Pa.

*From 2 ft. to 18 ft. O.D. and over. Patents applied for.

LUKENS
LUKENWELD DIVISION
★
DRIER ROLLS AND DRYING MACHINERY

IMPORTS

NEW YORK IMPORTS

WEEK ENDING MARCH 29, 1947

SUMMARY

Paperhangings	1 bl.
Wallpaper	1 cs.
Filter Paper	24 cs.
Wrapping Paper, 290 bls., 1678 rolls	
Photo Paper	75 cs.
Printing Paper	1 cs.
Miscellaneous Paper	2 bls.

PAPERHANGINGS

W. H. S. Lloyd & Co., Port Phillip, London, 1 bl.

WALLPAPER

J. J. Morrow, Samtana, Shanghai, 1 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Bernard N. Baker, London, 9 cs.

H. Reeve Angel & Co., Inc., Port Phillip, London, 15 cs.

WRAPPING PAPER

E. M. Warburg, Inc., Drottningholm, Gothenburg, 150 rolls, (sulphite).

Knight Bros. Paper Co., Drottningholm, Gothenburg, 66 rolls.

Manco Paper Co., Drottningholm, Gothenburg, 108 rolls.

Crepe Kraft Co., Drottningholm, Gothenburg, 112 rolls.

Arkell Safety Bag Co., Drottningholm, Gothenburg, 253 rolls.

Curacao Trading Co., Drottningholm, Gothenburg, 100 rolls, (glazed sulphite).

Resolute Paper Products Corp., Drottningholm, Gothenburg, 608 rolls, (white sulphite).

E. M. Warburg, Inc., Mormacyork, Gothenburg, 290 bls., 281 rolls.

PHOTO PAPER

Lep Transport Inc., Bernard N. Baker, London, 75 cs. (base paper).

PRINTING PAPER

S. H. Pomerance, Bernard N. Baker, London, 1 cs.

MISCELLANEOUS PAPER

K. O. Westin, Mormacyork, Gothenburg, 2 bls.

RAGS, BAGGINGS, ETC.

New England Waste Co., City of Dundee, Karachi, 100 bls. cotton waste.

C. Comiter Co., Aberdeen Victory, Bombay, 400 bls. cotton waste.

W. J. Green Co., Aberdeen Victory, Alexandria, 135 bls. flaxwaste.

(———), Aberdeen Victory, Alexandria, 46 bls. old white cottons.

Loumar Textile By Products Co., Aberdeen Victory, Alexandria, 46 bls. rags.

Cowa Co., Delane, Rio de Janeiro, 151 bls. cotton waste.

Brown Bros. Harriman & Co., Delane, Santos, 103 bls. cotton waste.

(———), Highpoint Victory, Beirut, 70 bls. old cotton rags.

Penson & Co., Cable Eye, Vera Cruz, 133 bls. rayon rags.

Kauders Steuber Co., Samtana, Shanghai, 400 bls. cotton waste.

Continental Bank Trust Co., Port Phillip, London, 45 bls. dyed khaki cotton canvas.

Darmstadt Scott & Courtney, Gainesville Victory, Antwerp, 118 bls. jute thread waste.

Riverside Mills, Bali, Shanghai, 100 bls. cotton waste.

Padawer Corp., Bali, Shanghai, 200 bls. cotton waste.

S. L. Ayres Co., Bali, Shanghai, 200 bls. cotton waste.

Camden Fiber Mills, Bali, Shanghai, 100 bls. cotton waste.

Williamson Northrup Co., Bali, Shanghai, 99 bls. cotton waste.

Manufacturers Trust Co., Halaula Victory, Genoa, 324 bls. bagging.

Textile & Paper Supply Corp., Halaula Victory, Genoa, 42 bls. dark cottons.

Continental Bank Trust Co., Halaula Victory, Genoa, 111 bls. dark cotton rags.

D. Benedetto, Halaula Victory, Genoa, 145 bls. dark cotton rags.

Continental Bank Trust Co., Bartlesville Victory, Venice, 375 bls. rags.

Amicale Wool Service Co., Bartlesville Venice, 453 bls. cotton rags.

CASEIN

P. A. Dunkel, Delane, Buenos Aires, 1667 bags.

National City Bank, Delane, Buenos Aires, 11168 bags.

Guaranty Trust Co., Delane, Buenos Aires, 5782 bags.

GLUESTOCK, ETC.

Transatlantic Animal By-Products Corp., Henry Richardson, Rio Grande du Sol, 1000 bags boneglue.

National City Bank, Delane, Buenos Aires, 182 bls. bluestock.

WOODPULP

Perkins Goodwin Co., Mormacyork, Gothenburg, 1200 bls. half prime strong bleachable sulphite pulp; 280 bls. unbleached sulphate pulp.

The Borregaard Co., Inc., Mormacyork, Gothenburg, 355 bls. dry chemical pulp.

Elof Hansson, Inc., Drottningholm, Gothenburg, 1 bl. woodpulp (sample).

PHILADELPHIA IMPORTS

WEEK ENDING MARCH 29, 1947

Darmstadt Scott & Courtney, Pierre Victory, Antwerp, 89 bls. bagging.

The Borregaard Co., Inc., Mormacyork, Gothenburg, 78 rolls wrapping paper.

Pagel Horton & Co., Inc., Mormacyork, Gothenburg, 508 bls. unbleached sulphate pulp.

Cellulose Sales Co., Mormacyork, Gothenburg, 3000 bls. dry sulphate pulp.

W. C. Hamilton & Co., Mormacyork, Gothenburg, 356 bls. dry bleached sulphite pulp.

Curtis Paper Co., Mormacyork, Gothenburg, 229 bls. dry bleached sulphite pulp.

Lush Cotton Products Co., City of Dundee, Cochin, 25 bls. cotton waste.

Columbia Waste Material Co., Exford, Istanbul, 93 bls. colored rags.

BALTIMORE IMPORTS

WEEK ENDING MARCH 29, 1947

Cellulose Sales Co., Mormacyork, Gothenburg, 425 bls. dry sulphite pulp.

The Borregaard Co., Inc., Mormacyork, Gothenburg, 127 bls. dry chemical pulp.

Gottesman & Co., Inc., Mormacyork, Gothenburg, 2540 bls. dry sulphate pulp; 2960 bls. dry chemical pulp.

Cellulose Sales Co., Mormacyork, Gothenburg, 1124 bls. dry sulphite pulp.

Pagel Horton & Co., Inc., Marmacyork, Gothenburg, 819 bls. dry sulphite pulp.

Bulkley Dunton Pulp Co., Inc., Mormacyork, Gothenburg, 3556 bls. dry sulphite cellulose.

Paper Imports Fell During January

WASHINGTON, D. C.—United States imports of paper, paperboard, and paper products in January 1947 totaled 306,942 tons, the Department of Commerce reports. These imports were about 23,000 tons below the December 1946 level and 32,000 tons below the 1946 peak reached in July.

Of total imports in this group during January, paper represented 301,181 tons, paperboard 5,298 tons, and paper products 463 tons, according to the Pulp and Paper Section.

Newsprint imports during January, amounting to 294,043 tons, were 24,533 tons less than those in December.

January imports of pulpwood increased 41,608 cords above the December total while wood pulp imports registered a gain of 31,549 tons in similar comparison.

January exports of paper, paperboard, and paper products totaled 35,684 tons, a decrease of 2,028 tons below those in December.

Of total exports in this group during January, paper amounted to 18,467 tons, paperboard 6,715 tons, and paper products 10,502 tons.

Newsprint exports in January, totaling 2,354 tons, gained 1,066 tons over the December figure.

January exports of wood pulp amounted to 6,475 tons, an increase of 3,738 tons over the December total.

A Guilty Felt

ALWAYS LEAVES ITS FINGERPRINTS

The wet felts on a paper or board machine take a terrible beating from the whippers and suction boxes —terrific punishment from the press. This is so obvious that operators naturally suspect felt failure whenever there is a slow down of the machines or imperfection of the finished product.

When our representatives hear complaints of this kind they begin their investigation at the finished sheets. If no felt marks are visible they know that the felts are not guilty. The trouble may be due to faulty alignment, to worn bearings, to distortion of rollers—any one of a hundred details that may easily be corrected.

Quite frequently the difficulty is traced to the use of felts that were not designed for the type of machine or the kind of furnish used. With hundreds of pedigreed Hamilton Felts at their disposal, they are able to provide the most efficient felts for every machine and for the nature of the product to be made on it.

★ ★ ★

From the thinnest tissue to the heaviest board there is a Hamilton Felt that will do your work better, faster and at lower cost.

SHULER & BENNINGHOFEN, HAMILTON, OHIO

• Miami Woolen Mills •

Hamilton Felts

• Established 1858 •

TRENDS

Office of the PAPER TRADE JOURNAL,
Wednesday, April 2, 1947.

Canadian newsprint manufacturers, who have for some time been supplying more than 80 percent of the newsprint consumed in the United States, are the chief beneficiaries of the new $6 per ton increase in the price of newsprint. This latest advance is not expected to have any immediate effect on increasing supplies of newsprint. Trade spokesmen, however, believe this added incentive may increase over-all production some 5 percent by the year's end. There is also the possibility that any such increase in production may be earmarked for the hard hit small consumers. Meanwhile, newsprint consumption in the United States is currently at a 4¼ million ton annual rate. Thus, the new price will add some 25 million dollars annually to the newsprint bill of United States consumers. The present base price of $91 per ton is about 59 percent above that prevailing prior to April 1 two years ago. Compared with 1935's $36 to $40 level, the new price shows an increase of approximately 139 percent.

The index of general business activity for the week ended March 22 rose to 148.3 from 146.1 in the previous week, compared with 132.6 for the corresponding week in 1946. The index of paperboard production was 174.5 compared with 178.6 in the preceding week and with 162.0 for the corresponding week in 1946.

Paper production for the week ended March 22 was estimated at 105.8 percent, compared with 107.2 for the preceding week, with 105.0 for the corresponding week in 1946, with 92.1 for 1945, with 90.3 for 1944, and with 90.6 percent for the corresponding week in 1943.

Paperboard production for the week ended March 22 was 103.0 percent of capacity, compared with 104.0 percent for the preceding week, with 99.0 percent for the corresponding week in 1946, with 99.0 for 1945, with 97.0 for 1944, and with 95.0 for the corresponding week in 1943.

Production of book, groundwood printing and fine papers is still held back by inadequate supplies of bleaches and paper-making chemicals. Still the principal problem confronting the industry today is the supply of freight cars and the shortage will be felt increasingly during the next several months. Some 7,000 cars of all kinds are going out of service each month as compared with about 4,000 coming in, and the situation will not be reversed for some time. Mills report receiving pulpwood in box cars which must be unloaded by hand. This is a slow operation which runs up demurrage charges and increases over-all costs. Today's high equipment and construction costs are causing some mills to postpone their expansion programs. The result is a delay in the addition of new capacity which was originally scheduled for late 1946 or early 1947. Converters continue to report a tight supply situation. A few converters report they could buy more paper and board in the open market at points distant from their locations but the increased cost would force their prices up to a point where the goodwill of their customers would be endangered.

Of potential significance to the United States paper industry is the report of impending legislation in Quebec looking toward the restriction of pulpwood exports by that province, except on permit. . . . An interesting side light on domestic pulpwood supply is the annual movement of approximately 200,000 cords of insect-killed Engelmann Spruce from Colorado to pulp mills in Wisconsin, with reasonable expectation that supplies in similar quantity will be forthcoming from this source for at least 10 years. . . . Among the recent substitutes for paper products is an aluminum milk bottle cap which takes the place of the inner disk and the outer cap. . . . Exclusive rights for use of a newsprint de-inking method known as the "sterling process" have been acquired by Buffum & Co., Chicago paper mill owners and operators. Buffum will make the first installation for the process at a plant in Saugerties, New York.

Wood Pulp

Wood pulp for export has been freed from price control by the Swedish government. The pulp industry in Sweden will exercise its own controls to limit price rises to $25 per ton over current levels. An arrangement has been made by pulp manufacturers with the Swedish government for the latter to retain 50 kroner per ton, or the equivalent of $12.75 for 2,000 pounds to take care of market fluctuations. Funds for this purpose will be returned eventually, but are expected to be held for approximately three or four years.

Figuring the new prices on the basis of on dock, Atlantic Seaboard, Swedish pulp will cost importers here $119 per ton for unbleached sulphite, $145 for bleached sulphite, $114 for unbleached kraft, and $150 for bleached kraft pulp.

Latest trade advices from Sweden indicate that the export quota of pulp to the United States for the shipping year beginning this month will be about 450,000 tons, or approximately 40 percent of Sweden's anticipated output.

Rags

A slight easing in the cotton rag market is due to shortages in new cuttings and a desire for improved packings of old cuttings on the part of the paper mills. No. 1 roofing rags remain strong, however, at $2.20 per 100 pounds to paper mills f.o.b. shipping point plus dealer's commission. Repacked thirds and blues are active at $3.

Quotations on new domestic cotton cuttings remain about the same with white shirt cuttings $11.50 to $12 per 100 pounds delivered to mills plus dealer's commission. Light silesias are $7.50; and light prints $5.95.

Old Rope and Bagging

Market for old rope continues steady with no change in quotations. Domestic Manila remains $5.75; jute strings $4.50 to $5; and No. 1 sisal strings $4 to $5.

Some easing is noted in the old bagging market with bright bagging offered and taken up just below the recent $4.25 to $4.50 level; and domestic No. 1 gunny also slightly under the $4.25 to $4.50 level. Heavy wool tares were maintained at $4.75 to $5.

Waste Paper

Collections of waste paper so far this year are about 9 percent above collections for the corresponding period in 1946. Despite this gain, the waste paper industry was not able to supply Eastern mills with sufficient paper stocks to meet production requirements during the first three months of this year. Nevertheless, it is expected that during the coming spring months collections will get into balance with production needs. Meanwhile, over-all demand for waste paper continues steady at prevailing price levels.

Cement Dispensing Agent For Ready-Mix Concrete

WISCONSIN RAPIDS, Wis. — Nearly 200 firms throughout the country are using a cement dispersing agent in ready-mix concrete which heretofore has been little more than a paper mill waste. Among them is the Wisconsin Valley Concrete Products Company of this city. The agent is a calcium lignosulfonate, a derivative of lignin. It has been endowed by nature with the power to change electrical charges in particles and through this simple reaction has profoundly influenced the desired qualities of concrete.

The problem always has been to get away from excessive amounts of water, which evaporates from the concrete when it dries, leaving pores and cracks, and yet not to sacrifice the ease of placing concrete in the plastic stage.

A reduction up to 40 percent of this placing water is made possible through the use of the dispersing agent by changing the electrical charge of each particle of cement and thus breaking up the water-entrapping clumps.

green woodpile your problem?

MERTANOL 7L is your answer

Right now, pitch problems caused by unaged wood are becoming more troublesome. But here's a way you can stop them before they start: Two to six pounds of Mertanol 7L per ton of paper, added to the beater, proves adequate insurance against shut-downs due to uncontrolled pitch in many mills.

Mertanol 7L is a neutral water solution of a synthetic organic sulfonic acid condensation product that apparently controls pitch in two ways:

1 . . . by helping to keep pitch dispersed

2 . . . by absorbing pitch physically, much as do the fillers sometimes used for pitch control

If you're struggling with pitch problems . . . plugging of screens and wire, wet paper sticking to press rolls and drying cans, or spotted paper . . . try Monsanto's Mertanol 7L, especially developed for pitch control. Samples, technical data or the freely given help of our paper technicians are yours for the asking. Write, wire or phone: MONSANTO CHEMICAL COMPANY, Merrimac Division, Boston 49, Massachusetts.

Mertanol: Reg. U. S. Pat. Off.

MONSANTO
CHEMICALS — PLASTICS

SERVING INDUSTRY . . . WHICH SERVES MANKIND

PRICES

With the elimination of price controls on paper, pulp, rags and other materials, the quotations given below once more become indicative of trends in an open market. At the moment they can be of little more, for, while some volume of business still is being done under contract at the figures given below, fluctuations representing special conditions are too varied and too frequent to permit prices to be given as representing a wholly stabilized market.

Paper

(Delivered New York)

Standard News, per ton—

Roll, contract	$84.00	@	$90.00
Sheets	103.00	"	109.00

Kraft—per cwt.—Carload Quantities

Zone A, Delivered
40 lb. base weight

Superstandard Wrapping	$6.25	@	$6.50
No. 1 Wrapping	6.00	"	6.25
Standard Wrapping	5.25	"	6.00
Standard Bag	5.75	"	6.25

Tissues—Per Ream 24x36 (480) 10 lb. Zone 1.

Wh. No. 1 Frd.	1.10	@	1.20
Wh. No. 1 M. G.	1.10	@	1.20
Wh. No. 1½	.95	@	1.10
Wh. No. 2	1.00	@	1.10
Wh. Anti-Tar.	2.25	@	3.50
Kraft Unbl.	1.15	@	1.25
Manila No. 2	.90	@	1.05

Toilet—Per Case of 100 rolls 1 M Sheets.

Unbleached	4.47	@	5.50
Bleached	6.50	"	—

Paper Towels — Per Case of 3750 Zone 1.

Wh. C. fold 11x13½	4.09	@	—
Br. Sgl. fold 10 in.	2.37	"	2.48
Br. M'tif'd 9½x14¾	3.48	"	—
Br. M'tif'd 9½x9¼	2.37	"	2.48

Manila—per cwt.—C. l. f. a.

No. 1 Jute	11.25	@	—
No. 1 Manila 35 lb.	6.00	"	7.00

Boards, per ton—

News	*75.00	@	81.50
Chip	*73.00	"	77.50
Sgl. Mls. L1 Chip	*89.00	"	92.50
White Pat. Coated	*101.50	"	110.00
Kraft Liners 42 lb.	*84.00	"	100.00
Binders Boards	94.00	"	126.00

Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5

The following are representative of distributors' resale prices, all deliveries in Zone 1:

Rag Content Bonds and Ledgers—White, Assorted Items

	Bonds		Ledgers	
100% Rag Ext. No. 1	$39.75 @	$46.75	$40.90 @	$48.00
100% Rag	32.85 "	38.50	34.00 "	40.00
85% Rag	.... "	....	30.55 "	38.75
75% Rag	24.30 "	28.50	24.45 "	30.00
65% Rag	.... "	....	.... "	....
50% Rag	20.05 "	24.50	21.25 "	25.75
25% Rag	17.85 "	21.75	19.00 "	23.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers.. White, Assorted Items

	Bonds		Ledgers	
No. 1	$12.00 @	$14.50	$13.15 @	$16.00
No. 2	11.25 "	13.75	12.25 "	15.00
No. 3	.... "	....	.... "	....
No. 4	10.60 "	13.00	11.75 "	14.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper

No. 1 Glossy Coated	$14.70 @		$16.75
No. 2 Glossy Coated	13.75 "		15.50
No. 3 Glossy Coated	13.20 "		16.00
No. 4 Glossy Coated	12.80 "		14.50
No. 1 Antique (Watermarked)	11.35 "		12.75
No. 2 Offset	10.65 "		12.25
A Grade E. F.	10.60 "		12.00
A Grade S. & S. C.	11.00 "		12.50
B Grade E. F.	10.30 "		11.75
B Grade S. C.	10.70 "		12.25
C Grade E. F.	10.00 "		11.50
C Grade S. C.	10.40 "		12.00
D Grade E. F.	9.70 "		11.00
D Grade S. & S. C.	10.10 "		11.50

Ivory & India at $.50 cwt. extra.

Wood Pulp

Domestic mill prices delivered with former OPA freight allowances.

	Per Short ADT		
Groundwood	$75.00 to		—
Unbleached Sulphite	115.00 "		120.00
Bleached Sulphite	121.00 "		125.00
Bleached Soda	105.00 "		115.00
Unbleached Kraft	102.50 "		—
Southern Kraft	90.00 "		102.50

Canadian mill prices delivered with freight allowances of $7.50 per ADT; unless otherwise specified:

	Per Short ADT		
Regular Kraft	$102.50 to		—
Select Unbleached Kraft (no freight allowance)	105.00 "		—
Unbleached Sulphite	115.00 "		120.00
Glassine Unbleached Sulphite (no freight allowance)	102.50 "		—
Bleached Soda	105.00 "		115.00
Groundwood	75.00 "		80.00
Siderums Pulping News	75.00 "		—
Hardwood and Specialty Grades	Nominal		

Swedish wood pulp prices, per ton of 2,000 lbs. air dry weight on dock usual Atlantic and Gulf ports with an average freight cost of about $9.00 per short ton included. Subject to change as it is said these prices are not satisfactory to Swedish producers:

	Per Short ADT
Bleached Sulphite	$145.00
Bleached Kraft	150.00
Unbleached Sulphite	119.00
Unbleached Kraft	114.00

Finnish quotations ex. dock, New York

	Per Short ADT
Bleached Sulphite	$165.00
Unbleached Sulphite	132.50
Unbleached Sulphite (special grade)	137.50
Unbleached Sulphate	132.50
Unbleached Sulphate (special grade)	159.00

Other European countries, at the present time, are not quoting on prompt and forward deliveries of wood pulp, because they have no tonnage available for export.

New Domestic Cotton Cuttings

(Prices delivered Mill Plus Dealer's Commission)

White Shirt	$11.50 to		$12.00
Light Silesias	7.50		
Unbleached Muslin	11.50 "		12.00
White Back Blue Overalls	8.25		
Blue Overalls	7.75		
Unbl. Fancy Shirt	4.50 "		5.00
Light Percales	5.50 "		6.00
Light Prints	5.25 "		5.95
Washables	4.00		
Bleachable Khaki	5.50 "		6.00
Unbleachable Khaki	5.00 "		5.50
Cottonades	4.50 "		5.00

Old Domestic Cotton Rags

(F.O.B. Shipping Point Plus Dealer's Commission)

	Per 100 lbs
No. 1 Whites Repacked	$5.00
No. 1 Whites Miscellaneous	4.25
No. 2 Whites Repacked	4.00
No. 2 Whites Miscellaneous	3.50
Blue Overalls	3.75
Thirds and Blues Repacked	3.00
Thirds and Blues Miscellaneous	2.50
No. 1 Roofing Rags	2.20
No. 2 Roofing Rags	2.10
No. 3 Jute Bagging	2.00
No. 4 Brussels and hard back carpets	2.00
No. 5A Roofing Rags	2.00

New Foreign Cotton Cuttings

(Prices delivered Mill)

	Per 100 lbs.		
New Dark Cuttings	$6.00 to		....
New Mixed Cuttings	6.50 "		....
Light Silesias	9.00 "		10.00
Light Flannelettes	8.00 "		9.00
New White Cuttings	13.00 "		15.00
Fancy Shirt Cuttings	9.00 "		10.00
Light Prints	8.00 "		10.00
Bleachable Khaki, No. 1	7.00 "		7.50
Unbl. Khaki, No. 1	6.25 "		6.75

Old Foreign Rags

(F.O.B. New York)

	Per 100 lbs.		
No. 1 White Linens	$14.00 to		16.00
No. 2 White Linens	12.00 "		13.00
No. 3 White Linens	8.00 "		9.00
No. 4 White Linens	8.00 "		9.00
No. 1 White Cottons	10.00 "		12.00
No. 2 White Cottons	8.00 "		9.00
No. 3 White Cottons	6.50 "		7.00
No. 4 White Cottons	5.00 "		5.50
Extra Light Prints	7.50 "		8.00
No. 1 New Light Prints	6.25 "		6.75
Med. Light Prints	5.25 "		5.75
Dutch Blue Cottons	5.25 "		5.50
Checks and Blues	4.00 "		4.25
Linsey Garments	4.50 "		5.00
Dark Cottons	3.75 "		4.00
Old Shopperies	3.25 "		3.50
New Shopperies	3.25 "		3.50

BAGGING

(Prices to Mill, f.o.b. N. Y.)

	Per 100 lbs.		
Foreign Gunny, No. 1	$4.75 to		5.00
Domestic Gunny, No. 1	4.25 "		4.50
Light Wool Tares	4.50 "		4.75
Heavy Wool Tares	4.75 "		5.00
Bright Bagging	4.25 "		4.50
Foreign Manila Rope	6.00 "		7.00
Domestic Manila Rope	5.75 "		...
Jute Strings	4.50 "		5.00
No. 1 Sisal Strings	4.00 "		4.50
Mixed Strings	1.75 "		...

Waste Paper

Prices to Mills
(Dollars Per Ton)
F.o.b. New York, Baled

No. 1 Hard White Envelope Cuts, one cut	$100.00	@	$120.00
No. 1 Hard White Envelope Cuts	90.00	"	100.00
No. 1 Hard White Shavings, unruled	100.00	"	110.00
No. 1 Hard White Shavings, ruled	80.00	"	90.00
Soft White Shavings, one cut	95.00	"	105.00
No. 1 Soft White Shavings	85.00	"	95.00
Soft White Shavings, Misc.	65.00	"	75.00
No. 1 Fly Leaf Shavings	55.00	"	60.00
No. 2 Fly Leaf Shavings	50.00	"	55.00
No. 1 Groundwood Fly Leaf Shavings	30.00	"	33.00
No. 2 Mixed Groundwood Fly Leaf Shavings	(nominal)		
Mixed Colored Shavings	(nominal)		
Mixed Groundwood Colored Shavings	(nominal)		
Overissue Magazines	(nominal)		
No. 1 Heavy Books & Magazines	40.00	"	45.00
Mixed Books	22.00	"	25.00
No. 1 White Ledger	70.00	"	80.00
No. 2 Mixed Ledger, colored	60.00	"	70.00
New Manila Envelope Cuttings, one cut	100.00	"	110.00
New Manila Envelope Cuttings	65.00	"	75.00
Extra Manilas	40.00	"	45.00
Mixed Kraft, Env. & Bag Cuttings	75.00	"	85.00
Kraft Envelope Cuttings	100.00	"	105.00
Triple Sorted, No. 1 Brown Soft Kraft	70.00	"	75.00
New 100% Kraft Corrugated Cuttings	70.00	"	75.00
No. 1 Assorted Old Kraft	40.00	"	50.00
New Jute Corrugated Cuttings	27.00	"	—
Old 100% Kraft Corrugated Containers	(nominal)		
No. 1 News	26.00	"	27.00
No. 1 Mixed Paper	19.00	"	21.00
Box Board Cuttings	23.00	"	—
White Blank News	75.00	"	80.00
Overissue News	(nominal)		
Old Corrugated	28.00	"	30.00
Mill Wrappers	22.00	"	25.00

Twines

All Prices Nominal (F. o. b. Mill) (Soft Fiber)

Coarse Polished—India	.26	@	.29
Fine Polished—Fine India	.31	"	.35
Unpolished—Paper Makers	.20	"	.26
Tube Rope	.22	"	.27½
Wrapping	.26	"	.33½
Cotton	.70	"	—
(Hard Fiber)			
Mex. Sisal	.21	"	.24
Manila	.33	"	—
(Hemp)			
Polished Hemp	.63	"	—

PHILADELPHIA

Domestic Rags (New)

(F.O.B. Eastern Shipping Point)

Shirt Cuttings— New White No. 1	.10½	@	.11
New White No. 2	nominal		
Light Silesias	.07½	"	.08
Black Silesias, soft	.06½	"	.07
New Unbleached	.10½	"	.11¼
Washable Prints	.06½	"	.07
Washable No. 1	.05	"	.05½
Blue Overall	.07½	"	.08
Cottons—According to grades— Washable Shredding	.03½	"	.04
Fancy Percales	.06¾	"	.07¼
New Black Soft	nominal		
Khaki Cuttings— Unbleachable Cotton Cuttings	.05½	"	.06
Bleachable Cotton Cuttings	.06½	"	.07
Men's Corduroy	.05½	"	.06
Ladies' Corduroy	.05	"	.05½
Cottonades	.05½	"	.06

Domestic Rags (Old)

(F.O.B. Eastern Shipping Point)

White No. 1—Repacked	4.50	"	5.00
Mixed White	4.00	"	4.25
White No. 2—Repacked	3.50	"	3.75
Thirds and Blues—Miscellaneous	2.25	"	2.50
Repacked	2.75	"	3.00
Roofing Stock— Foreign No. 1	nominal		
Domestic No. 1	2.00	"	2.05
Domestic No. 2	1.90	"	1.95
Roofing Bagging	1.90	"	1.95
Old Manila Rope	5.75	"	6.00

Bagging

(F.O.B. Eastern Shipping Point)

Gunny No. 1— Foreign	nominal		
Domestic	4.25	@	4.50
No. 1 Clean Bright— Sisal Strings	.04	"	.04½
No. 2 Clean Bright— Sisal Strings	.03	"	.03½
Sisal Jute	.02¾	"	.03
Scrap— No. 1	3.25	"	3.50
No. 2	1.75	"	1.85

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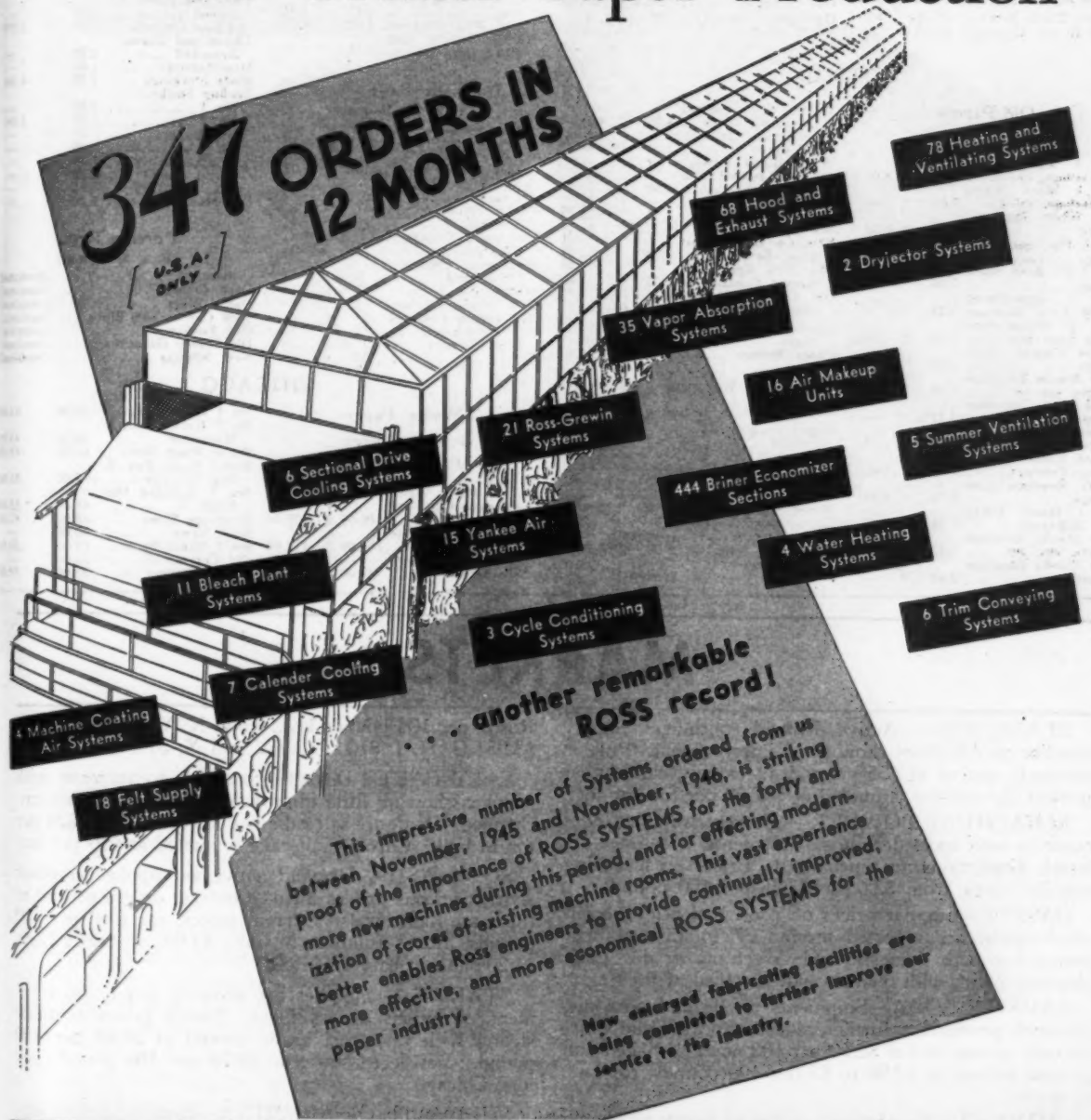
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Wool Tares, heavy	4.00	"	4.25
New Burlap Cuttings	6.00	"	6.50

Old Papers
(F. o. b. Phila.)
Mill Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	$100.00	@	$115.00
No. 1 Hard White Shavings, unruled	100.00	"	—
Soft White Shavings, one cut	90.00	"	95.00
White Blank News	60.00	"	65.00
Soft White Shavings	80.00	"	—
No. 1 White Ledger	75.00	"	80.00
Ledger, colored	60.00	"	65.00
No. 1 Heavy Books & Magazines	40.00	"	45.00
Overissue Magazines	nominal		
New Manila Envelope Cuttings	80.00	"	—
No. 1 Assorted Old Kraft	60.00	"	65.00
No. 1 Mixed Paper	20.00	"	—
Box Board Cuttings	20.00	"	—
Kraft Corrugated Cuttings	nominal		
Old Corrugated	30.00	"	35.00
Overissue News	40.00	"	—
No. 1 News	—	"	30.00

BOSTON

Old Papers
(F. o. b. Boston)
Mill Prices, Baled

No. 1 Hard White Shavings, unruled	7.00	@	8.00
No. 1 Hard White Shavings, ruled	7.00	"	8.00
Soft White Shavings, Mis.	6.25	"	6.50
No. 1 Fly Leaf Shavings	1.65	"	1.80
No. 2 Fly Leaf Shavings	2.00	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	1.25	"	1.50
Mixed Colored Shavings	2.50	"	2.75
New Manila Envelope Cuts, one cut	5.00	"	5.50
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	3.50	"	3.75
Mixed Kraft Env. & Bag Cuttings	3.75	"	4.00
Kraft Envelope Cuttings	3.75	"	4.00
No. 1 Heavy Books & Magazines	2.50	"	2.60
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	4.25	"	4.50
Groundwood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	3.50	"	—
No. 1 Mixed Paper	—	"	.95
Overissue News	1.50	"	1.75
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.50	"	—
Jute Corrugated Cuttings	1.07½	"	—
Paper Strings	2.25	"	2.50

Bagging
(F. o. b. Boston)

Gunny Bagging—			
Foreign	—	@	4.75
Domestic	—	"	4.75
Sisal Rope No. 1	6.00	"	—
Sisal Rope No. 2	5.50	"	—
Mixed Rope	5.25	"	—
Mixed Strings	2.00	"	2.50
Transmission Rope—			
Foreign	(nominal)		
Domestic	3.00	"	3.50
Manila Rope—			
Foreign	(nominal)		
Domestic	6.25	"	—
Soft Jute Rope	5.00	"	5.25
Jute Carpet Threads	6.00	"	—
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	—	"	4.75
Domestic	—	"	4.87½
South America	5.25	"	—
Wool Tares—			
Foreign	4.50	"	—
Domestic	4.50	"	—
Aust. Wool Pouches	5.00	"	5.25
New Zealand Wool Pouches	5.25	"	5.50
New Burlap Cuttings	6.00	"	6.50
Heavy Baling Bagging	5.25	"	5.75
Paper Mill Bagging	3.50	"	3.75
No. 1 Roofing Bagging	1.75	"	—

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.07	@	.07½
Fancy Percales	.07½	"	.08
New White No. 1	.10	"	.11
New Light Flannelettes	.08	"	.08½
Canton Flannels, Bleached	.10	"	.11
Underwear Cutters, Bleached	.10	"	.11
Underwear Cutters, Unbleached	.11	"	.12
Silesias No. 1	.07	"	.08
New Black Silesias	.05	"	—
Red Cotton Cuttings	.05	"	—
Soft Unbleached	.11	"	.12
Blue Cheviots	.07½	"	.08
Fancy	.06	"	—
Washable	.05	"	—
Khaki Cuttings	.06	"	.07
O. D. Khaki	.07	"	—
Corduroy	.03½	"	—
New Canvas	.06¼	"	.06½
B. V. D. Cuttings	.10	"	.11

Domestic Rags (Old)
(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—
Miscellaneous	3.20	"	—
White No. 2—			
Miscellaneous	2.65	"	—
Twos and Blues, Repacked	2.20	"	—
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—
Miscellaneous	1.80	"	—
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	2.00	"	—
No. 2	1.90	"	2.00
No. 3	1.35	"	—
No. 4	1.35	"	—
No. 5, Quality A.	1.35	"	—
Quality B.	1.20	"	—
Quality C.	.95	"	—
Old Manila Rope	6.00	"	—

Foreign Rags
(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper
(F. o. b. Chicago)
Mill Prices, Baled

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	$110.00	@	$120.00
No. 1 Hard White Shavings, unruled	105.00	"	115.00
No. 1 Soft White Shavings	80.00	"	95.00
No. 1 White Ledger	55.00	"	65.00
No. 1 Heavy Books & Magazines	40.00	"	45.00
White Blank News	43.00	"	49.00
Mixed Kraft Env. & Bag Cuttings	75.00	"	85.00
No. 1 Assorted Old Kraft	45.00	"	55.00
Overissue News	38.00	"	42.00
No. 1 News	30.00	"	—
No. 1 Mixed Paper	19.00	"	20.00
Old Corrugated	33.00	"	—
Mill Wrappers	25.00	"	29.00

MARKETS

BLANC FIXE—Active demand continues. Supply steadier as deliveries show some improvement. Pulp is currently quoted at $55 per ton, in barrels, car lots, at works; the powder is quoted at $67.50 per ton car lots.

BLEACHING POWDER — Current supplies adequate to meet most demands. Shipments sometimes delayed. Quotations are unchanged. Prices on bleaching powder range from $2.65 to $3.35 per 100 pounds.

CASEIN—Current prices on processed acid precipitated casein are reported around 37 to 43 cents per pound for both domestic and Argentine grades f.o.b. shipping point, with quantity not specified at present.

CAUSTIC SODA—Shipments are behind schedule. Cut-back production further reduces stocks. Solid caustic soda is reported at $2.50 per 100 pounds; flaked and ground offered at $2.90 to $3 per 100 pounds, car lots, at works.

CHINA CLAY—Demand continues heavy as supply remains tight. Domestic filler clay is currently $8.50 to $9 per ton, car lots. Coating clay is $12 car lot and $16 less car lot. Imported clay is $20 to $22 per ton, car lot, export warehouse; and $45 less car lot for powdered.

CHLORINE—Market tight as demand continues to exceed output, stocks low. Lack of tank cars continues to hamper deliveries. Quotations unchanged. Chlorine is currently quoted at $2 to $2.25 per 100 pounds.

ROSIN—Gum rosin in drums, per 100 pounds net, in yard New York, car lots, B, D, $10.80; E, F, G, H, I, K, M, $11.50; WG, $11.75; WW, $11.75; Wood Rosin, per 100 pounds l.c.l., f.o.b. N. Y., B, $7.45; FF, $8.95; G, H, I, $10.25; WW and X, $10.45.

SALT CAKE—Demand continues to increase with supplies showing little improvement. Prices remain unchanged. Domestic salt cake is quoted at $22 to $24 per ton in bulk. Chrome salt cake is quoted at $16 per ton.

SODA ASH — Demand active as supplies continue short, previous orders filled. Contract orders prevail at the same high levels. Current prices, car lots, per 100 pounds, are as follows: in bulk, $1.05; in paper bags, $1.20; and in barrels, $1.60.

STARCH — Supplies are showing steady improvement. Previous orders filled. Starch prices continue strong with the pearl grade quoted at $4.67 per 100 pounds; powdered starch at $4.78 per 100 pounds, car lots, Chicago.

SULPHATE OF ALUMINA—Demand active, supply fair. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.20 per 100 pounds, in bags, car lots, f.o.b. works. The iron free is quoted at $1.75 to $2 per 100 pounds, in bags, at works.

SULPHUR — Strong seasonal demand is reported with stocks plentiful to meet all requirements. Annual contracts are quoted at $16 per long ton, f.o.b. mines; the price f.o.b. at Gulf Ports is $17.50 per long ton.

TALC—Domestic and French grades are moving in fair volume with prices steady. Domestic grades are currently quoted at from $16 to $30 per ton at mines; Canadian at $35 to $45 per ton. All prices in car lots.

Here is VARIETY

Don't you have an idea for a product that could be made from GEON polyvinyl materials?

Calendered sheets and films—injection and compression moldings—coating for fabrics, fibers and papers—extrusions—all the attractive and useful articles shown here were made from GEON polyvinyl materials. Such products may be brilliantly or delicately colored—clear or opaque—flexible or rigid.

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While we make no finished products from GEON, we would be glad to work with you on any special problems relating to the use of GEON. We'll be glad to work with you, too, on problems in connection with other raw materials manufactured by B. F. Goodrich Chemical Company. These products include HYCAR American rubber, KRISTON thermosetting resins and Good-Rite chemicals. For more information please write Department U-4, Rose Building, Cleveland 15, Ohio. In Canada: Kitchener, Ontario.

Shown in the illustration are the following products: fly swatter, raincoat, tablecloth, shower and window curtains, press polished sheet, blanket bag, floor tiles, garden hose, dog leashes, lady's belt, lady's handbag, clothesline and wire insulation.

B. F. Goodrich Chemical Company

A DIVISION OF THE B. F. GOODRICH COMPANY

GEON polyvinyl materials • HYCAR American rubber • KRISTON thermosetting resins • GOOD-RITE chemicals

Publishers Reaffirm Distribution Policy

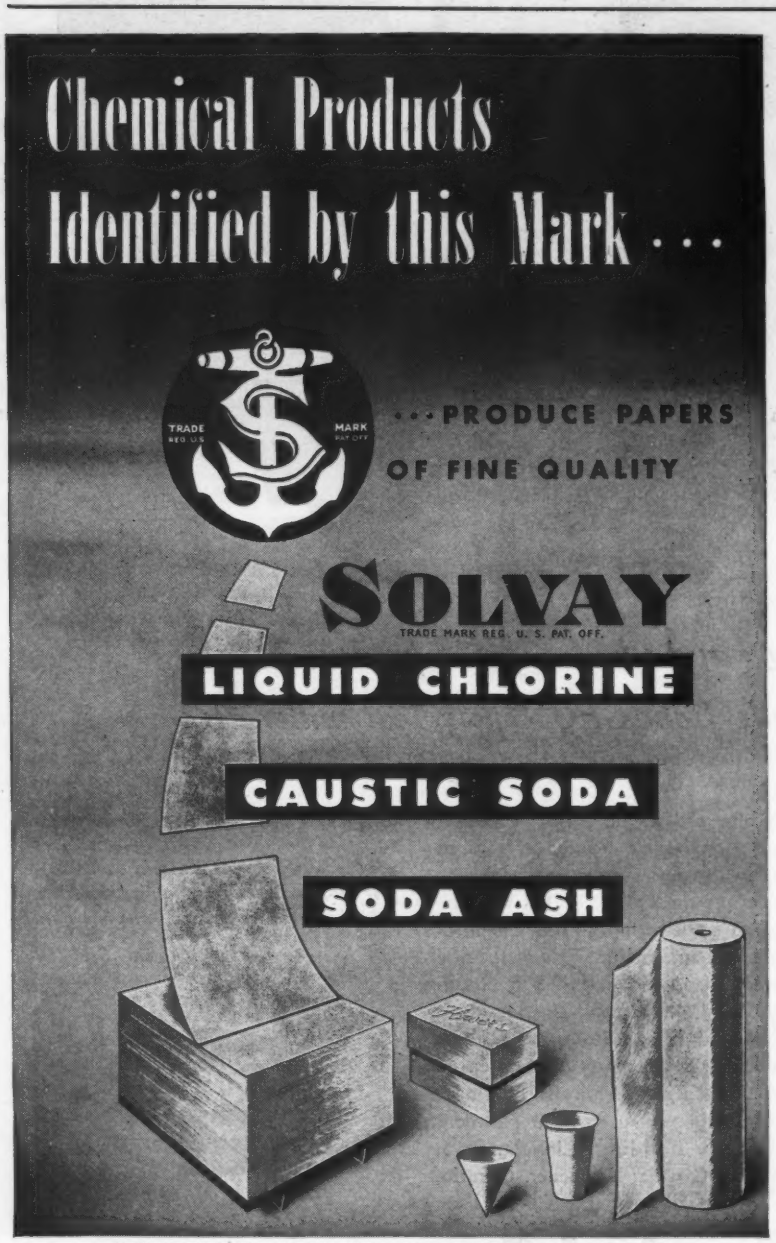
(Continued from page 7)

"This committee believes that the records of the Senate Small Business Sub-committee show that distress situations have arisen almost invariably from circumstances where a newsprint mill has been taken out of production or converted to the manufacture of another type of paper; or when a merchant or jobber has diverted tonnage from a regular customer, sometimes in order to obtain a higher price or to secure some one whom he considers a more desirable customer. It is a problem which the entire paper industry, including its customers, must attempt to solve and not any one segment.

"This committee suggests the inclusion of manufacturer, jobber and magazine representatives because in its opinion, adjustment of the problem is dependent upon increased newsprint production and/or improved distribution of it, the solution of which lies mainly with the entire group. Representatives of magazines are suggested because of the number of them which use newsprint and because a diversion of newsprint mills to magazine types of paper has contributed to the present situation. It is the thought of this committee that assistance, information and guidance from all groups may materially help solve the current problem.

"A very important contribution to the overall supply of newsprint was made by publishers who invested substantial amounts of capital in the establishment of new mills and machines, the output of which is used by themselves and other newspapers. Had this not been done these publishers would now be taking their needs out of a much smaller available supply. This contribution, however, has not kept pace with the diversion of newsprint mills to other paper. The committee feels that further steps in the development of newsprint mills should be encouraged."

The report was signed by Julius Ochs Adler, (New York Times); E. M. Antrim, (Chicago Tribune); Stuart M. Chambers, (St. Louis Post-Dispatch); J. D. Gortatowsky, (Hearst Newspapers); R. A. Huber, (Scripps-Howard Newspapers); John S. Knight, (Knight Newspapers); Charles E. Moreau, (National Editorial Association); Richard W. Slocum, (Philadelphia Bulletin); Frank E. Tripp, (Gannett Newspapers).



Woodpulp Imports Rise in February

WASHINGTON—Imports of woodpulp into the United States from all sources totaled 160,073 short tons in February 1947 as compared with 142,069 tons in February 1946, the Department of Commerce reported last week. Canada ranked as the principal supplier in both February 1947 and February 1946. Data on imports, prepared by the Pulp and Paper Section, Office of International Trade, follow:

Imports from Canada in February this year were 7,524 tons larger than in February 1946. Imports from Sweden were 1,684 tons more than in February 1946. Of total February 1947 imports, 14,436 tons were of rayon and special chemical grades of bleached sulphite, a decrease of 2,532 tons from the February 1946 total. Imports of all other grades of pulp as used in the manufacture of paper in February 1947 totaled approximately 90,000 tons.

United States consumption by paper mills of imported pulp averages around 125,000 tons a month, indicating a slight surplus for inventories. However, imports from overseas sources in February, March, and April, when northern European harbors are usually frozen, are expected to be small.

Kimberly Safety Contest

KIMBERLY, Wis.—A new safety contest will start April 7 at the Kimberly mill of Kimberly-Clark Corporation. It will continue for six months. Instead of the usual mill-wide contest, the various departments will compete against each other. Rules and regulations were being drawn up this week with the aid of workmen elected for the purpose.

For assured flow control, the valve must suit the service

You don't have to be an Isaac Walton to know what's wrong with these fishing pictures. Silly misapplications of equipment, aren't they? But no sillier than using *valves* in services for which they were not specifically designed.

Through more than a hundred years of making valves—and valves only—Powell Engineers have been designing the *right* valves to suit the specific requirements of every existing industrial flow control service. Today, the Powell Line includes Bronze, Iron and Steel Valves of every necessary type, design, size and pressure. And, for corrosion resistance, Powell makes a notably complete line in the widest range of pure metals and special alloys ever used in making valves.

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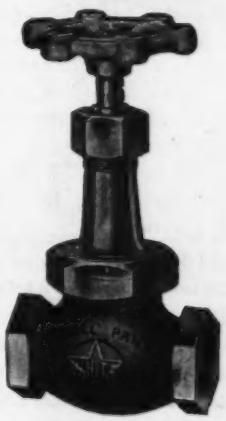
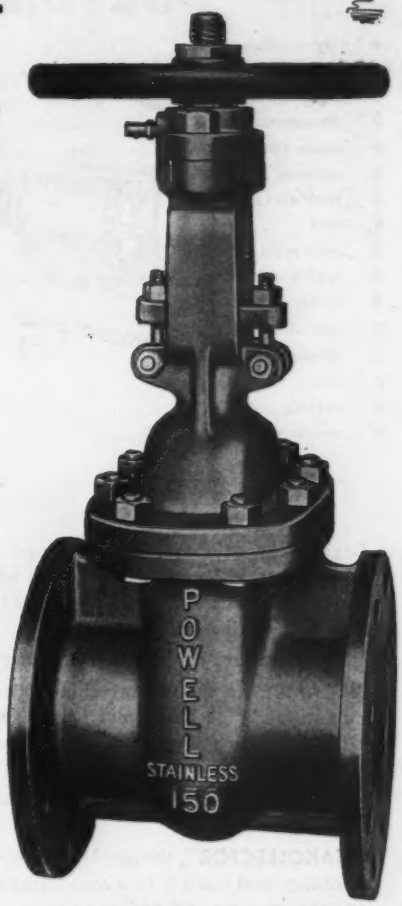


Small size 200-pound Bronze Globe Valve for steam, oil, water or gas. For assured, long-life performance it has a renewable, specially heat treated stainless steel seat and a regrindable, renewable, wear-resisting "Powellium" nickel-bronze disc.



New, standard 150-pound Stainless Steel Gate Valve with bolted flanged yoke-bonnet, outside screw rising stem and taper wedge solid disc. This is one of Powell's many special designs for corrosion resistant valves which are available not only in stainless steels but also in many other alloys and pure metals.

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POWELL VALVES

Tinker Sees Rise in Book and Groundwood

(Continued from page 9)

character, will occur. However, if the trend in paper consumption continues to follow the trend line of the past two decades the demand for the products of the planned new capacity will exist.

"Presumably with due consideration of excessive construction costs, the outlook for adequate supplies of raw material and the stability of consumer demand, a substantial increase in the productive capacity of the paper industry is justified.

"On the basis of existing plans there will be, after allowing for diversions and retirements, increases between January 1, 1946, and December 31, 1948, in the following amounts:

	Tons	*Per Cent*
Book paper	582,000	32
Groundwood printing papers	248,000	37
Fine papers	126,000	11
Sulphite, Kraft and Other Wrapping paper	424,000	13
Tissue paper	311,000	29
Newsprint paper (U. S. only)	149,000*	—17
Paperboard	1,205,000	12
Building papers	166,000	15

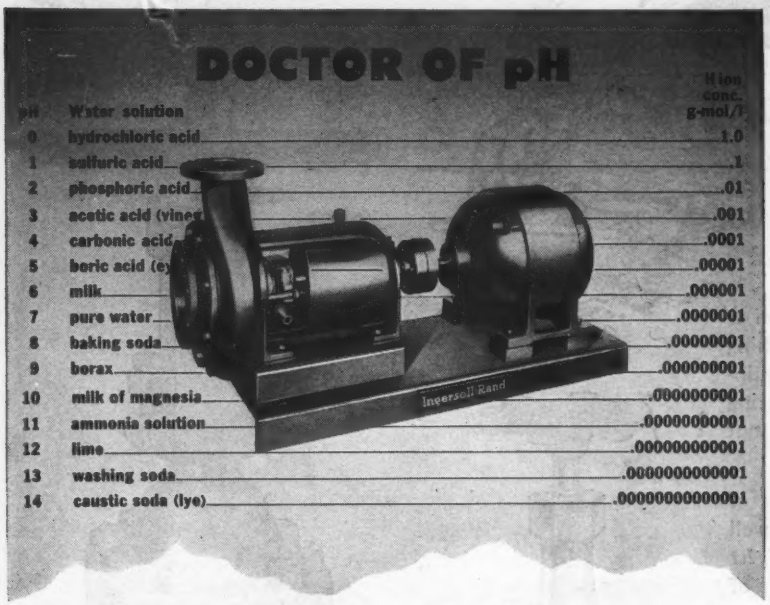
* Decrease.

"If normal conditions prevail the trend line in consumption would indicate that this additional capacity will be required to meet public needs. However, there are many uncertainties in the situation among which is the world's best advertised pending recession. It is no part of the functions of the American Paper and Pulp Association to influence individual business judgment with respect to plans for the future but we do attempt to keep the industry fully informed of the facts upon which to base judgment and naturally hope that these judgments will be of a temperate nature and based upon judicial consideration.

"May I speak for a moment of the long-time outlook for paper production in the United States. The limit on this production will not be mill capacity to produce. It might be pulpwood but I have every confidence that the growing recognition in the industry of the economic feasibility of forestry enterprises will solve this problem. Nearly 15 million acres of forest land is owned by paper companies; according to official reports, 82 percent of this land is managed for regrowth in a fairly satisfactory manner. We have in this country a superabundance of forest land; over 400,000,000 acres. Forestry has become an economic enterprise and private enterprise is recognizing this fact.

"I would like to comment upon one particular feature of the present situation that is extremely disturbing. Reports are in common circulation, not only among the trade but in Washington, that distributors are taking advantage of distress situations to obtain almost fantastic prices for paper. I realize that these reports are based upon exceptional cases but nevertheless it is a direct blow against the free enterprise system and not only reflects discredit upon the distribution agencies in the paper industry but indirectly upon the manufacturers as well.

"No one can view the tremendous increase in the consumption of paper and paperboard without appreciating the service the industry has rendered our national economy. However, none of us should lose sight of the fact that this tremendous expansion in usage was due in part to the fact that paper and paper products were obtainable at reasonable prices. Beyond a question the manufacturer and the distributor must have a reasonable profit in order to continue in business but it is essential that foresight and efficiency be used to the maximum degree in order that the products of the industry remain available to the public at prices that will not result in the loss of markets. I believe this fact should be recognized by both management and labor as essential to the well-being of both. I am sure that out of this period of shortages many industries that are taking undue advantage of the situation will find a curtailed use of their products that will be extremely difficult to overcome. The habits and the thinking of the general public are difficult to change. It is to be hoped that paper will remain a cheap and plentiful commodity with expanding markets, based upon its availability and general economic utility."



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IN PART

But to win real success, to give real service to society, the scientist must have more than technical knowledge and technical skill. If those are all he possesses, he will never rise above certain limited levels of usefulness and success. The good scientist of the future, even more than the good scientist of the past, must understand more than the reactions in a test tube. He must understand other human beings and be able to work with them. He must understand himself. He must have some grasp of the forces and ideas, outside of science, which are motivating men and nations.

This means that somehow, whether through college courses or in other ways, he must gain a general education as well as a technical one. He should have a clear conception of the meaning of history. He should be able to express himself clearly and persuasively in spoken and written English.

Indeed, the young scientist must temper his sense of his value and service with a little realistic humility. He must realize that science has its limitations; it cannot solve unaided the human problems of society—which are our primary and most pressing problems. He must not only be concerned with these issues, but must also realize that other young people who are specializing, not in science but in human learning, are as important as he is to our civilization and that they are making their equally precious contribution to all human progress.

—By Alan Valentine, President, University of Rochester, in The Educational Focus, *Bausch & Lomb Optical Company, Rochester, N. Y.*

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1947		Corresponding Weeks—1946	
February 15	104.5	February 16	95.0
February 22	105.9	February 23	98.0
March 1	108.5	March 2	101.8
March 8	104.5	March 9	103.4
March 15 Revised	107.2	March 16	104.1
March 22	*105.8*	March 23	105.0

COMPARATIVE MONTHLY SUMMARIES

1946						1947	
Jan.	94.7	May	100.7	Oct.	106.4	Jan.	102.1
Feb.	98.4	June	104.6	Nov.	105.5	Feb.	*105.9*
March	104.4	July	94.0	Dec.	97.0		
April	102.7	August	104.7	Year Avg.	101.1		
		Sept.	101.3				

COMPARATIVE YEARLY SUMMARIES

	1940	1941	1942	1943	1944	1945	1946	1947
Year to Date	85.9	88.9	103.7	88.6	88.6	88.2	98.1	*104.9*
Year Average	85.6	97.4	90.4	87.8	88.1	89.7	101.1	

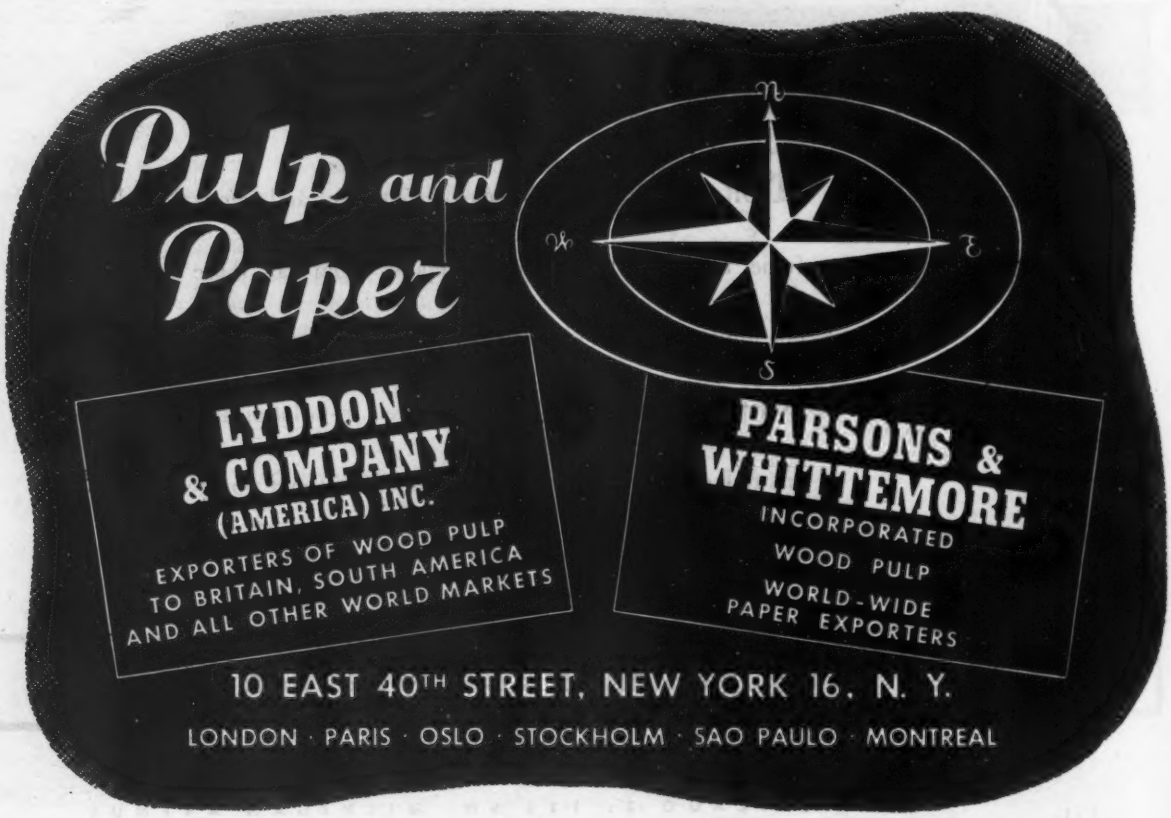
PAPERBOARD OPERATING RATIOS†

Current Weeks—1947		Corresponding Weeks—1946	
February 15	102	February 16	94
February 22	103	February 23	97
March 1	102	March 2	98
March 8	102	March 9	99
March 15	104	March 16	100
March 22	*103*	March 23	99

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1946	90	97	100	99	94	97	89	99	96	100	99	92	96
1947	99	*103*											

*Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

†Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.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EDITORIAL

Duty to be Cautious

The heavy weight of high costs made its influence felt almost constantly this week in New York as the important distributing interests of the paper industry met to discuss their own progress toward a stabilized economy, and to talk, collectively, with their chief sources of supply, the paper mills. At the opening sessions of the National Paper Trade Association convention on Monday afternoon the keynote was set to this tune, both by Senator Bridges, who spoke from a point of view of national and international economies, and by Reuben Robertson, who as president of the American Paper and Pulp Association offered his audience counsel that the industry must strive to keep its foundations strong and solidly rooted.

Mr. Robertson's reference to the paper industry as an aristocrat among industries was particularly fortunate, not so much for the implied boastfulness that is associated with the term as for the strongly accented suggestion that responsibility must always be attached to eminence. Huge aggregations of capital, he reminded his hearers, are now required to establish a producing unit capable of operating at competitive cost. A paper mill requires approximately $20,000 of capital investment for each worker employed and exceeds all other industries in this regard with the exception of those making chemicals.

Large capital investment calls for skilled, reliable workers; workers of that sort command high wages: skilled workers imply skilled supervisors. Business necessity has made of the paper industry something of an aristocrat among industries (we modestly admit it). A paper mill must build not for months nor for years, but for generations: its policies can not be short-sighted or narrowly selfish.

"In many fields of business," said Mr. Roberston, "(paper included) people with money in their pockets are eager to buy more things than can at the moment be produced. That situation results in a certain amount of 'desperation' or 'hysteria' buying with the consequent creation of false values. Such a seller's market as we are in, calls for judgment and restraint, if we are to avoid the blunders of over expansion, unbalanced price structures and the array of evils which follow in their train. The paper industry has been described as a 'prince and pauper industry' because too often it has built its productive capacity on assumptions of sustained demand that could not be actually realized. Its alternate periods of 'boom' demand, and 'bust' over-production have been reflected in the very modest returns on the dollar of capital investment in the industry. A net return of less than 5 per cent over the years indicates that the paper industry has not enjoyed fanciful profits.

"As is well known, today we have in this country mills that have favorable raw material supplies and efficient equipment with resultant low cost production. We also have mills that are keeping their costs below selling prices only with the greatest difficulty. Demand for paper is at its historical peak and all mills' high cost and low cost alike are needed for the contribution they can make to total supply. The price needs of these high cost mills deserve consideration. There seems to be no escape from the fact that at present price levels, some mills will make liberal profits, while others will make barely enough to provide incentive for continuing in the business.

"Paper mills generally in this country are operating at the peak of capacity permitted by their pulp supply. More machines are being installed but the installation of more machines will not of itself help unless at the same time more pulp is made available and more virgin pulp cannot be made until suitable forest areas can be found and mills built in those areas.

"Forest areas suitable for pulp mill use are few and far between in continental United States and those that remain un-utilized will involve high operating costs. A substantial portion of our pulp supply has in the past come from the Scandinavian countries. Swedish mills, for instance, are hampered by lack of coal and the devastation of the forests, occasioned by the necessary wartime substitution of wood for coal as fuel. Many mills are integrating their production so as to sell finished paper instead of pulp and others are finding more profitable sales in the field of dissolving pulps and so are diverting to that field pulp production that formerly was allocated to the paper industry.

"There seems to be very little prospect for substantially increased supplies of paper pulp coming to this country from Scandinavia in the next 12 months.

"Eventually we will, of course, find the economic balance between demand and supply of paper and paper products, but for the coming year it looks as though that balance will come through somewhat lessened use.

"It may savor of defeatism to advise the temporary acceptance of a modest curtailment of use, rather than a further expansion of production in paper, but I sincerely believe that it is better for all concerned, the paper producer, the merchant, the consumer alike, that the industry be built on the firm foundation of a maintained market rather than on the sands of temporary surge. I believe your Association can be helpful in supporting the policies of patience, restraint, foresight and resourcefulness which lead to that desirable end."

W. L. Cook

Editor

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122 E. 42nd ST., NEW YORK 17, N. Y. Edited By R. G. MACDONALD, Secretary

Report of Standards Committee—1946

By Roger C. Griffin[1]

While no records were broken in 1946, the year saw a steady progress in the work on standards and testing methods. In accordance with recommendations first made in the 1944 report, and repeated in 1945, the Executive Committee also appointed a new committee on Routine Control Methods. While it is recognized that these should be considered entirely separate from standard methods, nevertheless it is felt that the Standards Committee should approve the final form in which such methods are published.

New and Revised Standards

Six new tentative standards were approved during the year and submitted to the secretary for publication:

T 17 m-46. Cellulose in Wood *(1)*
T 472 m-46. Compression Resistance of Paperboard (Ring Crush Test) *(2)*
T 475 m-46. Bleeding Resistance of Asphalted Paper *(3)*
T 477 m-46. Blocking Resistance of Paper and Flexible Materials *(4)*
T 632 m-46. Analysis of Sodium Silicate *(5)*
E 601 s-46. Specification for Chemical Composition of Process Water for Kraft Paper Manufacture *(6)*

Seven new suggested methods were approved and published:

T 230sm-46. Cupriethylenediamine Disperse Viscosity of Pulp *(7)*
T 471sm-46. Testing Analytical Filter Papers *(8)*
T 473sm-46. Insect Resistance of Packages, Paper and Paperboard *(9)*
T 474sm-46. Bending Quality of Paperboard *(10)*
T 476sm-46. Abrasion Resistance of Paper and Paperboard *(11)*
T 478sm-46. Erasing Quality of Paper *(12)*
T 806sm-46. Adhesiveness of Seals and Closures for Packages *(13)*

One proposed suggested method was rejected by the Standards Committee and returned with constructive criticisms to the originating committee for further consideration. Another was considered more suitable as a control method and was referred to the Routine Control Methods Committee.

Revisions of three standards were approved and published as follows:

T 201 m-46. Cellulose in Pulp *(14)*
T 408 m-46. Rosin in Paper and Paperboard *(15)*
T 446 m-46. Moldability (Crease Retention) of Wrapping Paper *(16)*

These three are official standards and, in accordance with regulations, the revisions will be submitted to vote of the Association for final acceptance.

Nine tentative standards were submitted to vote of the membership for advancement to official standards. As a result of the vote five were accepted:

T 220 m-42. Physical Testing of Pulp Handsheets
T 227 m-43. Freeness of Pulp
T 446 m-42. Creasing Quality of Paper
T 457 m-42. Stretch of Paper and Paperboard
T 466 m-44. Degree of Curl and Sizing of Paper

In view of criticisms raised by various members, it was decided to continue the other four as tentative standards. These criticisms are valuable and very welcome, as they provide groundwork for future revisions.

During the year the committee had before it for action seventeen standards and methods.

Contents of Book of Standards

Late in the year there were mailed to the membership for inclusion in the looseleaf book of standards and methods new and revised numerical and alphabetical indexes and 33 items as follows:

5 new official standards
9 new tentative standards
6 new suggested methods
1 revised suggested method
2 revised standards
10 corrected standards and methods

During the last three years 94 standards and methods have been issued in corrected form for the looseleaf book. The material in the book now comprises the following:

	Tentative	Official	Total
Standard Recommended Practices	1	10	11
Standard Specifications	1	1	2
Standard Testing Methods	40	98	138
Suggested Methods	..	..	21
		Total	172

This is an increase of ten over last year's report.

Work of Committees

The new and revised standards and methods accepted by the Standards Committee during the year originated in the following committees:

	New	Revised	Total
Packaging Materials Testing	7	1	8
Chemical Methods	2	2	4
Paper Testing	2	0	2
Nonfibrous Materials Testing	1	0	1
Water	1	0	1
	13	3	16

The total of sixteen compares with seventeeen for the previous half. Half of the total came from the Packaging Materials Testing Committee. Dr. George R. Sears assumed the chairmanship of this committee early in the year. The committee still has a heavy agenda of new work before it and should "go places" in 1947. Potentially, there are numerous standards and methods waiting to be hatched by various other committees. The committees in the testing division are naturally standards-conscious. It is highly desirable that other committees should be sensitive to the possibility of developing standards from the results of their work. This, however, seems

[1] Member TAPPI; Chairman, TAPPI Standards Committee; Arthur D. Little, Inc., Cambridge, Mass.

to be difficult to accomplish in many cases. It may be partly caused by lack of more systematic follow-up.

Two suggestions are made to improve existing standards and accelerate the preparation of new ones:

1. Each committee should annually review existing standards and methods for which it is responsible, taking into account any criticisms that have been received. Such standards and methods as appear to need revision should at once be put on the active agenda of the committee. This is fully as important, altho it may not be as stimulating, as preparing new standards.

2. When the annual progress report required of each committee is submitted to the Secretary of TAPPI, a copy should be sent to the Chairman of the Standards Committee. This would enable the latter to keep in closer touch with the work of the various committees and to comb the reports for material which might suggest the preparation of new standards.

Changes in Membership

The Standards Committee lost a valuable member in the death of Edward O. Reed on June 23, 1946. He had served for more than ten years on the committee. He was a fine personality and an able technician and will be sorely missed. L. B. Tucker has been appointed to fill the vacancy on the committee caused by Mr. Reed's death. Mr. Tucker was for many years Ed's assistant and has also succeeded him as Technical Director at Crane and Company, Dalton, Mass.

Harold C. Parish of Skinner & Sherman, Inc., Boston, Mass., was appointed Vice-Chairman of the Standards Committee in May. He was for many years assistant to the present chairman at Arthur D. Little, Inc., Cambridge, Mass. He has a broad knowledge and experience in paper testing and in testing and analyses in general, as well as in the preparation of testing methods, standards and specifications. Not only has the Standards Committee been strengthened by the addition of Mr. Parish as Vice-Chairman, but by increasing the membership from six to seven the possibility (rather remote, to be sure) of a tie vote has been eliminated.

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14. *Paper Trade J.* 123, No. 25: 33 (Dec. 19, 1946).
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16. *Paper Trade J.* 123, No. 16: 28 (Oct. 17, 1946).

Delaware Valley TAPPI Date Change

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry will meet at the Engineers Club, Philadelphia, Pa., on Friday, April 11th at 6:30 p.m. This meeting, ordinarily held on the first Friday of the month, is postponed one week because of Good Friday. The speaker will be M. A. Dahlen, Assistant Director, Dyestuffs Division, E. I. du Pont de Nemours, Wilmington, Del. He will discuss "Long Range Chemical Research from the Standpoint of Management and the Technical Man."

Hudson Valley TAPPI Discusses Lighting

B. A. Thomas of Buffalo, N.Y., Division Engineer of the Lamp Department of the General Electric Company, addressed a joint session of the Hudson Valley Chapter of the TAPPI Empire State Section and the New York State-Canadian Division of the Superintendents Association following a dinner at the Queensbury Hotel in Glens Falls, N. Y., on Friday, March 21st. Mr. Thomas was introduced by Henry W. Fales, chairman of the local chapter and spoke on "Light Sources and Their Applications."

The manufacturer of lighting equipment is faced with problems which may conveniently be considered under five heads — Increasing Efficiency of Light Sources, Decreasing Size, Lowering Costs, Control and the Development of New Fields of Light Sources. The speaker proceeded to show that the lighting industry has fulfilled its aims along these lines by citing examples of progress already made and indicating work in progress. He demonstrated the advances in efficiency of 1.4 lumens per watt and compared it with a modern "slimline" fluorescent lamp producing 65 lumens per watt. Similarly, the success attained in reduction of size of equipment as well as efficiency was spectacularly demonstrated by a comparison of a regular 1000 watt incandescent lamp, 6½" diameter of 20 lumens output per watt with a 1000 watt, water-cooled mercury lamp putting out 65 lumens per watt. This unit is not much larger than a match. It has a brightness of 1/5 that of the sun. Control of light has been improved by the development of built-in reflectors as illustrated by modern spot, flood and show case lamps.

An example of the development of new fields of light sources was given by citing the infra-red drying lamps which are used primarily for the evaporation of water and reference was made to recent experiments wtih this eqiupment in the drying of wallpaper. Another development demonstrated was the germicidal lamp for the purification of air and water by ultra-violet radiation.

The exhibits shown during and following the address ranged from the tiny "grain of wheat" lamp of the surgeon to a special incandescent diver's lamp which operates only under water and which carries a quantity of tungsten powder inside the bulb. The tungsten serves to scour the glass to free it of blackening.

Mr. Thomas stated that the annual production of lamps is 1¼ billion, ranging from ¼ watt to 50,000 watt and covering between 9 and 10 thousand types.

Among those present were: W. F. Curtis, Anthony Prestera, George H. Pountain, C. V. Simmons, Harry S. Newell, W. J. Mandigo, F. J. McCourt, Jr., R. M. Drummond, A. B. Copping, Vance P. Edwardes, R. D. Moynihan, A. L. Mosher, R. I. Wynn-Roberts, G. Granger, R. E. Neilson, A. L. DuPont, H. W. Fales, E. F. Anderton, Don M. Parrish, M. B. Gormley, John Potter, Edwin Frye, D. B. Wheeler, L. T. Ross, B. A. Thomas, J. Nixon, E. C. Waters, Clayton Howe, A. J. Langlois, I. W. Fox, K. Seeber, R. E. Markey, N. H. Zamache, Allen A. Lowe, F. P. Doane, Jr., R. Collins, Eric Collberg, W. M. Leeson, Nils Leffler, E. C. Keyser, James E. Foote, H. F. Jacques, Roger Trimbey, Charles Howland, Charles L. Wright, W. W. Metcalf, Peter J. Abel, C. D. Hollister, Joe Quinn.

Repulping of Melamine Resin-Treated Wet-Strength Paper*

By Donald D. Niemeyer[1] and Loren V. Forman[2]

Abstract

Various experimental repulping procedures were applied to melamine resin wet-strength broke to demonstrate their effect on the quality of the stock produced and to obtain data that would be of value in commercial operations. The procedures consisted of (1) soaking the paper before defibering in a beater, (2) cooking the broke in pressure vessels, (3) exposing the paper to high temperatures and humidities, (4) cutting the paper into small particles followed by beater treatment, (5) defibering with a disk refiner or a rod mill, and (6) cooking the wet-strength broke with wood chips by the kraft process.

Data are also given for the operation of a commercial installation of the Steam Jet Process. This is performed in a beater while steam is introduced through nozzles mounted on the sides of the beater between the roll and backfall. At temperatures approaching the boiling point and in the presence of alum, a completely defibered stock having a high freeness and good physical properties is produced.

An acidity greater than that obtained with alum promotes hydrolysis of the melamine resin at elevated temperatures but it causes degradation of stock. If alkaline conditions are used, hydrolysis is retarded and the broke defibers very slowly.

By applying certain amino-aldehyde resins, it has been possible for the paper industry to develop many products for which the usual grades would not be suitable. Although wet strength is the main property imparted by adding these resins, there is a definite improvement in the dry strength of the paper. In some cases, at least, this treatment may also be used to obtain better dimensional stability *(1, 2, 3, 4)*.

In the wet strengthening of paper with melamine-formaldehyde resin, such as Parez** Resin 607, a fiber-to-fiber bond is established which is not readily ruptured by mild chemical or mechanical treatments. For this reason, it has not been feasible to employ the usual procedures for repulping the broke, the trimmings from converting plants, or old waste containing wet-strength paper. Some paper mills have reused wet-strength broke by mechanically defibering the paper in a hot acidic suspension. In this process *(5)*, sufficient hydrolysis of the resin occurs so that the wet strength is reduced and the paper can be disintegrated. However, this method has not been found satisfactory in all cases, particularly for paper containing large amounts of melamine resin. It also has been proposed *(2)* that the paper may be defibered in the usual manner if it has been previously cooked in a pressure vessel without addition of acid to the water used in the cook.

Because there was no fundamental information available regarding the effect of the variables of these and other processes, the American Cyanamid Company sponsored an investigation at The Institute of Paper Chemistry for the purpose of evaluating repulping methods for paper treated with melamine resin. In addition to tests performed with several laboratory procedures, data were obtained on the operation of a commercial installation of the Steam Jet Process *(6)* for repulping wet-strength paper.

The laboratory experiments were performed with unbleached kraft wet-strength broke. This was a creped paper which was made for conversion into military tarpaulins. It was supplied by the Mosinee Paper Mills, together with a sample of the same grade of paper made without melamine resin in a run following that from which the wet-strength broke was collected. The melamine resin content of the wet-strength broke was 3.6%, which gave it a very high wet strength.

Effect of Hot Acid and Alum Soak, Followed by Mechanical Defibering

According to the Thomas patent *(5)*, repulping of wet-strength paper is accelerated by using an acidic material to produce a pH of less than 5.0 and a temperature in the range of 100 to 212°F. Because the use of alum rather than a mineral acid represents a more practical operation in a commercial system, this method was applied in the laboratory, using different amounts of alum, as well as of sulphuric acid.

The broke was soaked for 1 hour in sufficient solution to produce a consistency of about 5.5%. The temperature was maintained at about 185°F.

The laboratory Dilts beater was used as a broke beater for defibering the soaked paper. The charge consisted of 6 pounds of paper and enough water to produce a consistency of about 2.5% on the moisture-free basis. With the temperature at 185°F., the suspension was circulated for 30 minutes with the roll in an elevated position. Then the roll was lowered to touching and raised one turn on the hand-wheel adjustment to give a brushing action. This was designated as the zero point of the beating operation. The brushing time in the beater represented the time required to defiber the stock.

Samples were removed at 0.5-hour intervals after the roll was lowered. These were used for determining the freeness and for the preparation of handsheets (Institute Method 411) which were tested for bursting strength and tearing strength.

During the course of the beater treament, dilute samples of the stock were visually examined to determine the point at which defibering was complete. This was subsequently verified by an inspection of the handsheets.

The operating conditions and the physical properties of the repulped broke are shown in Table I. Data are included for the tarpaulin paper without wet strength, which was defibered without the addition of acid or alum.

Under optimum conditions, the repulping process should not reduce the freeness of the stock to such an

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The experimental work presented in this paper was carried out for the American Cyanamid Company, and is published with their permission.

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** Reg. U. S. Patent Office.

extent that it would cause a lower production rate on the paper machine when it is reused. The handsheets made from repulped melamine resin-treated paper should have physical properties approximately the same as those of the handsheets prepared from the paper containing no melamine resin. It is apparent from Table I that the paper without wet strength had a lower freeness after repulping than that obtained with the melamine resin-treated paper. This might have been caused by the difference in machine runs from which the two samples were obtained and also by the presence of the melamine resin on the fibers in the wet-strength paper.

TABLE I.—EFFECT OF USING HOT SULPHURIC ACID AND ALUM IN REPULPING TARPAULIN PAPER

Sulphuric Acid, % by weight	Alum, %	pH Data: Soaking	pH Data: Beating	Time to Defiber, min.	Schopper Freeness, ml.	Apparent Density	Bursting Strength, pt./100 lb.	Tear Factor
8.4	..	1.6	2.6	30	780	12.0	72	1.62
3.7	..	2.0	2.2	15	750	11.5	59	1.45
2.2	..	2.9	3.8	30	745	11.5	65	1.63
..	4	3.6	4.5	45	740	12.0	81	1.64
..	2	3.9	4.7	45	770	12.0	80	1.72
..	..	3.9	4.8	60	690	12.5	87	1.59
Without melamine resin		..	..	60	545	13.0	94	1.70

Melamine resin-treated paper soaked for 1 hr.; soaking and beating at 185° F.
Paper without melamine resin soaked for 1.5 hr.; soaking at 185° F. and beating at 105° F.

The use of sulphuric acid to produce a pH in the range of 1.6 to 2.9 in soaking and 2.2 to 3.8 in beating accelerated the repulping so that the time was reduced from 60 minutes for the treatment without acid or alum to 15 to 30 minutes at the lower pH. However, the hot acid repulping caused a significant decrease in the bursting strength with a small loss in tearing strength from the values obtained on the repulped paper without melamine resin.

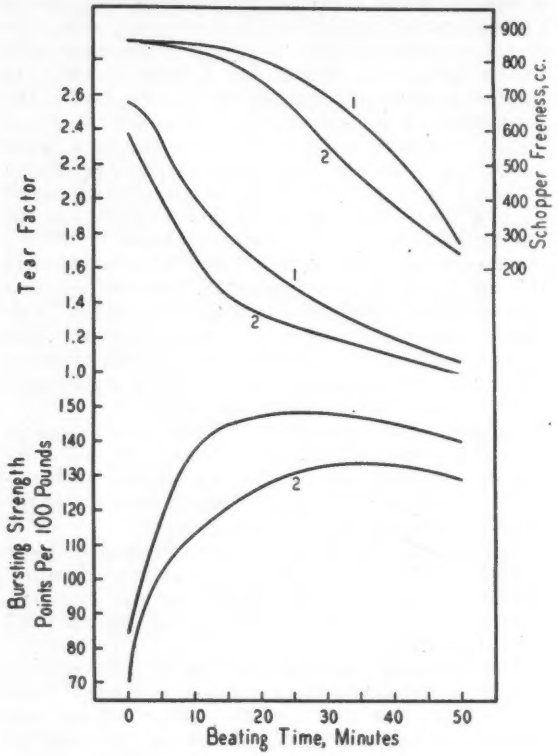

FIG. 1
Physical Properties of Experimental Kraft Pulps. 1. Jack Pine Chips Cooked Alone. 2. Jack Pine Chips Cooked with Melamine Resin-Treated Paper

With the same conditions of processing, alum also increased the rate of repulping—45 minutes were required for defibering. This was not as effective as acid but the hot alum-treated broke had a bursting strength of about 80 pt./100 lb., whereas with hot acid the bursting strength was 59 to 72 pt./100 lb.

Since, without the addition of alum to the soaking medium, the pH was 3.9, it is evident that a large amount of alum had been used in manufacturing that particular lot of wet-strength paper. The further addition of 4% alum on the weight of the paper, during the repulping, caused only a slight reduction in pH to a value of 3.6.

Although the hot acid treatment accelerates the decomposition of the melamine resin, the low pH would prohibit the use of this method on a commercial scale unless corrosion-resistant equipment were available.

Effect of pH in Soaking and Mechanical Defibering at Elevated Temperature

In some repulping systems, the operation is performed at a high temperature but the stock is maintained in an alkaline condition. For this reason, it seemed desirable to study the effect of pH on the rate of defibering and the physical properties. The wet-strength paper was processed in the same manner as previously described, except that caustic soda was added during soaking. The conditions and results are given in Table II, together with the data from the previous table which completes the range of pH that was investigated.

TABLE II.—EFFECT OF pH IN REPULPING TARPAULIN PAPER AT ELEVATED TEMPERATURE

Sulphuric Acid, % by weight	Sodium Hydroxide as NaOH, %	pH Data: Soaking	pH Data: Beating	Time to Defiber, min.	Schopper Freeness, ml.	Apparent Density	Bursting Strength, pt./100 lb.	Tear Factor
3.7	..	2.0	2.2	15	750	11.5	59	1.45
2.2	..	2.9	3.8	30	745	11.5	65	1.63
..	..	3.9	4.8	60	690	12.5	87	1.59
..	1.0	5.2	5.0	75	720	12.0	86	1.64
..	1.4	8.2	8.5	205	500	12.5	103	1.59
Without melamine resin		..	..	60	545	13.0	94	1.70

Melamine resin-treated paper soaked for 1 hr.; soaking and beating at 185° F.
Paper without melamine resin soaked for 1.5 hr.; soaking at 185° F. and beating at 105° F.

The addition of caustic soda in this method of operation to produce a pH of about 8.5 increased the time required to defiber the wet-strength paper to 205 minutes. The long period of brushing in the presence of alkali reduced the freeness of the stock to 500 ml. However, at this pH, as well as at pH 5.0, the repulped paper had better bursting strength than that of the hot acid-treated broke.

It is apparent from these data that a broke system operated under alkaline conditions represents possibly the most unfavorable conditions for the hydrolysis of melamine resin and liberation of the individual fibers in wet-strength paper.

Cooking the Broke in Pressure Vessels Followed by Mechanical Defibering

* It has been reported by Fromm *(2)* that cooking wet-strength paper under pressure without the addition of chemicals will facilitate subsequent defibering. This method was applied to the tarpaulin paper to determine the approximate cooking conditions required and the characteristics of the repulped paper.

Three cooks were made in rotary digesters, in which the total cooking time was 0.5, 1 and 1.5 hours. The maximum pressure of 30 p.s.i. was reached 0.5

hour after starting the cook. Enough water was used to give a ratio of 4 ml./g. moisture-free paper.

The cooked paper was transferred to the beater and defibering was performed at room temperature. Because the paper from the 0.5-hour cook retained a high proportion of its wet strength, it was not repulped. The data obtained on the 1 and 1.5-hour cooks are given in Table III.

It was found that increasing the cooking time from 1 hour to 1.5 hours decreased the time required for defibering from 2 hours to 1 hour. Disregarding the differences in freeness, the repulped paper from these cooks did not have as high a bursting strength as that obtained for the paper without melamine resin The stock made from a wet-strength paper after the 1.5-hour cook had a high tear factor.

These cooking and defibering operations produced pulps that had physical properties similar to those obtained with the hot acid treatment in the beater. If a cook were made at a lower pH, the decomposition of the melamine resin might have been accelerated, but degradation would probably be more severe. Furthermore, the use of the process on a commercial scale would be limited because corrosion-resistant equipment would be required for the cooking.

TABLE III.—CHARACTERISTICS OF REPULPED TARPAULIN PAPER AFTER COOKING UNDER PRESSURE

(Maximum pressure of 30 p.s.i. reached in 0.5 hour; beater temperature 75° F.)

Total Cooking Time, hr.	Time to Defiber, hr.	Schopper Freeness, ml.	Apparent Density	Bursting Strength, pt./100 lb.	Tear Factor
1	2	710	11.5	73	1.49
1.5	1	755	11.0	59	2.13
Without melamine resin*	1	545	13.0	94	1.70

* The paper was not cooked; see Table I.

It should be mentioned that the wet-strength paper from the 1.5-hour cook defibered as readily as the paper that was not treated with melamine resin. As shown in Table III, both operations required 1 hour to complete defibering, although the paper without melamine resin had been previously soaked for 1.5 hours at 185° F.

Because stationary digesters might be available in some mills for the cooking operation, an experiment was made in the laboratory stationary digester to determine whether the paper could be blown and partially defibered by this means. A water ratio of 9 ml. per gram of moisture-free paper was used so that enough water would be available to provide circulation through the heat exchanger. In a 3-hour cook, the maximum pressure of 75 p.s.i. was reached after 2 hours. The digester was blown at the cooking pressure. Although the paper had little wet strength after cooking, only a small amount was blown from the digester at the end of the cook. For this reason, the cooked paper was not defibered in the beater.

Soaking Wet-Strength Paper in Hot Water Prior to Repulping in the Beater

Although a cook at 30 p.s.i. pressure for a period of 1 to 1.5 hours is necessary to adequately hydrolyze the melamine resin, it might be practical to approach the same result by soaking the paper in hot water. Therefore, the effect of the time of soaking at a temperature of about 185° F. was studied. Soaking periods of 0.5 and 3 hours were investigated.

The temperature during the defibering operation in the beater was also 185° F., except for one test in which the beater temperature was 75° F. after soaking for 3 hours. The data for these experiments

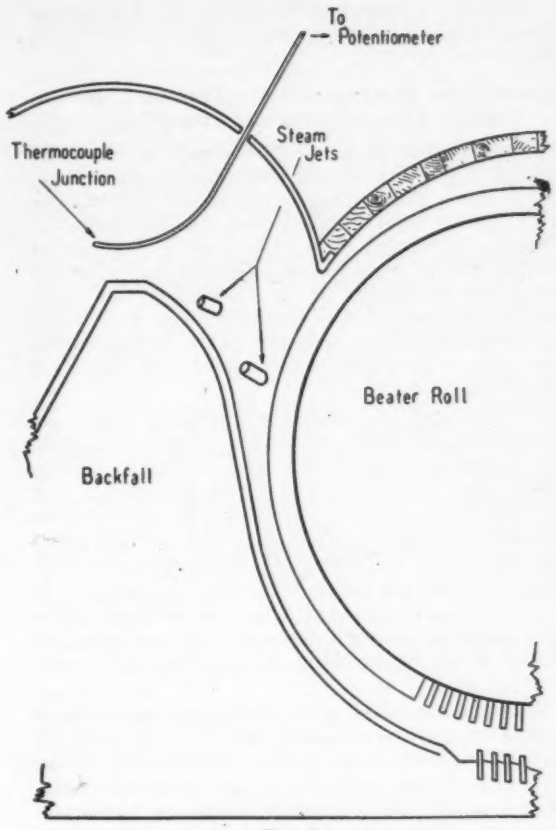

FIG. 2

Cross Section of Roll and Backfall of Beater Used for the Steam Jet Process, Showing Nozzle and Thermocouple Arrangement

are presented in Table IV, which includes the results obtained for the 1-hour soaking period as previously shown in Table I.

Good strength properties at a high freeness level were obtained by soaking the wet-strength paper in hot water for 1 to 3 hours prior to defibering in the beater at elevated temperature. Under these conditions, the freeness of the stock was about 700 ml., the bursting strength was 87 pt./100 lb., and the tear factor varied from 1.59 to 2.12. When the beating temperature was reduced to 75° F., the rate of defibering was such that many clumps of fiber remained after 2 hours of brushing. It would seem, therefore, that an appreciable amount of hydrolysis occurred at the elevated temperature prevalent in the beating operation.

TABLE IV.—CHARACTERISTICS OF REPULPED TARPAULIN PAPER AFTER SOAKING IN WATER AT 185° F.

Soaking Time, hr.	Beater Temperature, ° F.	Time to Defiber, hr.	Schopper Freeness, ml.	Apparent Density	Bursting Strength, pt./100 lb.	Tear Factor
0.5	185	2	680	13.0	93	1.67
1*	185	1	690	12.5	87	1.59
3	185	1	705	12.5	87	2.12
3	75	2**	665	12.5	79	1.83
		Without Melamine Resin				
1.5	105	1	545	13.0	94	1.70

* pH in soaking was 3.9 and during defibering it was 4.8.
** Inadequately defibered.

The pH during the 1-hour soaking period was 3.9 and during defibering at the lower consistency it was 4.8. Although the pH was not determined in the other experiments, it is probable that this type of wet-strength paper contained enough alum to produce an appreciable acidity in each instance. This promoted hydrolysis of the melamine resin.

When using a temperature of 185° F., degradation of the cellulose was less than when cooking at a pressure of 30 p.s.i.

Exposure of Melamine Resin-Treated Paper to High Temperatures and Humidities

The question arose as to whether it might be possible to hydrolyze the melamine resin by exposing the broke to high temperatures and humidities. For the laboratory experiments employing this principle, a vertical digester was used. Ribbons of the broke were placed in the digester and saturated steam was introduced at the bottom of the vessel. The digester was relieved slowly through the top and the condensate which collected in the bottom of the vessel was discharged continuously through the blow valve.

After treating the paper for 5 hours at a digester pressure of 100 p.s.i., it was very brittle, indicating that excessive degradation had occurred. Degradation also was evident when the processing time was reduced to 2 hours. Even with 0.5 hour at this pressure, the bursting strength of the repulped paper was only 33 pt./100 lb. and the tear factor was 0.65.

By lowering the pressure to 5 p.s.i. during a 5-hour treatment, somewhat better physical properties were obtained, although defibering was not complete after 2 hours of brushing in the beater at a temperature of 75° F.

With the saturated steam treatment, the moisture content of the paper would probably be relatively low. This would cause a high concentration of the acidic constituents present in the melamine resin-treated paper and severe conditions of hydrolysis. Therefore, the preferred method of processing above a temperature of 212° F. would be to add enough water to soak the paper and thus minimize the loss in strength properties.

Effect of Cutting Wet-Strength Broke Prior to Repulping in the Beater

If the laboratory experiments that have been mentioned were to be employed commercially, it would be necessary in most instances to cut the paper before it could be handled satisfactorily and charged to the beater without plugging around the beater roll. This is being done in some mills before it is fed to the defibering equipment. Because there might be an advantage in the ease of defibering if the paper were cut to a small size, the effect of cutting the paper before defibering in the beater at elevated temperature was studied.

An ensilage cutter made by the Eagle Manufacturing Company was used for cutting the dry broke. The standard design of this machine was employed, except for one or two slight modifications. The clearance between the rotary knives and bed knife was much smaller than commonly used for cutting farm crops. Screen plates, having ⅛-, ¼-, or ¾-, inch perforations, held the paper in the cutting chamber until the size was reduced sufficiently to be carried through the screen by the air stream of a blower incorporated in the machine. The cut paper was separated from the air and collected by means of a cyclone separator.

The temperature in the beater during repulping was about 185° F. After the beater was charged, the suspension was circulated three hours before the roll was lowered. This period replaced the 3-hour soaking period previously used for paper that was processed without cutting. Data for paper that was not cut (see Table IV) are included in Table V, which gives the physical properties after repulping the wet-strength paper which had passed through the cutter.

TABLE V.—EFFECT OF CUTTING MELAMINE RESIN-TREATED BROKE BEFORE REPULPING IN THE BEATER

(Slushed 3 hours at 185° F. before lowering beater roll)

Screen Size, in.	Time to Defiber, hr.	Schopper Freeness, ml.	Apparent Density	Bursting Strength, pt./100 lb.	Tear Factor
1/8	2*	485	13.5	63	0.95
1/4	2*	570	13.5	71	1.19
3/4	2	600	12.0	80	1.47
Uncut **	1	705	12.5	87	2.12

* Inadequately defibered.
** Soaked 3 hours at 185° F. (see Table IV).

On the basis of these data, reduction in the particle size of the paper gave repulped broke which had progressively lower tearing strength and bursting strength as the particle size of the paper was reduced. It was observed that the paper cut with the ⅛- and ¼-inch screens defibered less readily than that made with the ¾-inch screen.

By extrapolating the data of Table V, it would seem feasible to cut the paper with a 1.5 to 2-inch screen without materially reducing the strength of the repulped broke. The main advantage in cutting the paper would be in the ease and speed with which the beater could be furnished. Where paper is in the form of slabs, the cutting would separate the sheets and the wetting of the paper would be facilitated by the increased surface exposed to the water. These factors would probably be more apparent in a commercial beater than in the small-scale equipment.

Defibering with a Disk Refiner and Rod Mill

Although the beater is commonly used for repulping broke, a few trials were made with a disk refiner and a rod mill to determine whether these units would be suitable for defibering the wet-strength paper.

A Bauer pulper was employed which had 36-inch disks driven by 100 hp. motors. The B-950 plates were mounted on the disks. The bars on these plates are approximately ⅛-inch wide and spaced at intervals of about ⅛-inch. The consistency of the material fed to the Bauer was 15 to 20%. Enough water was added just before the paper reached the disks so that the consistency was reduced to 5 to 7%.

Shredded broke was prepared for the Bauer experiments by passing the paper through a hammer mill equipped with a ¾-inch perforated screen plate. After soaking in cold water, the shredded paper was fed to the Bauer with the plates adjusted to a clearance of 0.010 inch. The pulp from this operation was only partially defibered. It was given a brushing treatment in the beater at room temperature but the fiber bundles did not disperse.

In another experiment, the shredded broke was given two successive Bauer treatments after it was slushed in the beater for 0.5 hour at 185° F. and then drained on a screen to increase the consistency of the stock. After the first pass at a plate clearance of 0.008 inch, the pulp had almost the same number of fiber bundles as resulted from the treatment without preliminary slushing in hot water. By adjusting the plates to zero clearance for the second pass, defibering was almost complete. The pulp had a freeness of 735 ml., a bursting strength of 69 pt./100 lb., and a tear factor of 1.71.

The Bauer treatment resulted in flakes of paper

that seemed to be reduced in thickness and had the appearance of a group of fibers bound together loosely. However, the brushing action of the beater did not completely separate the fibers.

In treating the broke in the laboratory rod mill, the temperature was about 185°F. and the consistency was 20%. At periodic intervals, the mill was opened to observe the progress that was made in repulping. After 2 hours of milling, chips of paper were present in the stock, although the Schopper freeness of the pulp had been reduced to 310 ml.

It should be emphasized that these experiments were exploratory in nature and, therefore, the results of a more comprehensive study might lead to better processing conditions for the disk refiner and the rod mill which would promote better defibering. Units such as these could probably be used advantageously in combination with other equipment for repulping wet-strength paper.

Cooking Wet-Strength Broke with Wood Chips

In studying the effect of pH in repulping in the beater, it was demonstrated that alkaline conditions were detrimental to the defibering operation. Nevertheless, it might be feasible to use more drastic alkaline conditions such as would obtain in a kraft cook made on a mixture of paper and wood chips. Therefore, this procedure was applied to a mixture of jack pine chips (¾-inch nominal length) and tarpaulin paper which was shredded in the hammer mill. For purposes of comparison, a cook was also made on the wood alone.

TABLE VI.—PROPERTIES OF JACK PINE KRAFT PULP AND THE KRAFT PULP OF A JACK PINE—WET-STRENGTH PAPER COOK

Digester Charge		Jack Pine and Paper *	Jack Pine
Permanganate number		21.0	22.7
Unscreened yield, %		48.4	45.6
Screened yield, %		48.0	45.2
Screenings, %		0.8	1.0
Physical Properties			
Schopper freeness, ml.	0**	855	855
	5	845	850
	15	805	835
	30	560	700
	50	240	270
Apparent density	0	10.5	10.5
	5	11.5	11.5
	15	13.0	12.5
	30	14.0	14.5
	50	15.5	15.5
Bursting strength, pt./100 lb.	0	70	84
	5	102	117
	15	120	145
	30	133	148
	50	129	140
Tear factor	0	2.37	2.56
	5	1.99	2.33
	15	1.43	1.76
	30	1.21	1.39
	50	0.98	1.06

* It is assumed that the pulp contains 25% melamine resin-treated broke.
** This column is beating time in minutes.

The chips were mixed with the shredded paper as they were placed in a stationary digester. Enough paper was added so that it would represent 25% of the pulp produced in the cook, assuming 45% yield on the wood and no loss in cooking the paper. In terms of the total ovendry charge going to the digester, the paper amounted to 13% of the weight of the wood and paper.

Normal kraft cooking conditions were employed. With a chemical ratio of 19.4% as Na_2O and a sulfidity of 20%, the maximum pressure for the 3-hour cook was 105 p.s.i. The digester was relieved to 80 p.s.i. before blowing.

The pulp was washed in the blow pit and screened on a 0.010-inch cut diaphragm screen. The yield and permanganate number (Institute Method 410) were determined. The pulp was evaluated in the 1.5-pound Valley beater (Institute Method 403). The results obtained in cooking the chips with and without melamine resin-treated paper are given in Table VI and Fig. 1.

Although the paper was not completely defibered by blowing, the wet strength was reduced sufficiently so that very little paper was present in the screening rejects removed by the 0.010-inch cut screen. However, some fiber bundles from the tarpaulin paper were visible in the screened pulp. These disappeared after 15 minutes of beating in the standard test beater. At this point, the freeness was 805 ml., which is above the value used for the production of most grades of paper and board.

The olive-drab color of the tarpaulin paper was visible in the pulp. If the method were applied commercially, it would not be feasible to cook wet-strength paper and wood together if the dyes used in the paper remained in the pulp to the extent that the color of other paper products would be affected.

With the same cooking conditions, the permanganate numbers of the pulps composed of 75% wood pulp and 25% repulped paper, and 100% wood pulp agreed closely. In other words, the paper and wood required about as much chemical (based on the weight of material charged to the digester) and the same cooking schedule as were required by the wood alone.

The yield of unscreened pulp from the wood was 45.6%. If it is assumed that the same yield was obtained from the wood fraction when 13% of the digester charge was paper, then the yield of pulp obtained from the paper was 67.2%. This represents a loss in the yield which would probably be greater than for any of the other processes that were investigated.

As shown in Fig. 1, the pulp containing about 25% of wet-strength broke had much lower bursting and tearing strengths than did the wood pulp. Obviously, the strength of the repulped paper obtained by the best system of defibering would not be as great as that of the pulp from which it was made. The loss in strength was caused by this factor, as well as by the degradation during the pulping of the paper with the wood.

Evaluation of the Steam Jet Process

As previously mentioned, it has frequently been necessary to cut paper before it could be charged to a commercial beater to avoid plugging in the channel around the roll. At a consistency of 5 to 7% and at an elevated temperature, very long periods of slushing oftentimes were not effective in completely defibering the paper. However, by the proper application of these operating conditions, together with the methods described in the Thomas patent *(5)*, a new process was developed which represents an economical and convenient method of reusing melamine resin-treated paper. This procedure, designated as the Steam Jet Process *(4)*, is the subject of a patent application by the inventors *(7)*.

The Steam Jet Process has been used successfully for more than a year in a commercial stock preparation system. Because it would be of interest to obtain data on the operation of the process in connection with this investigation, the Institute cooperated in an evaluation of a number of normal repulping cycles.

A Niagara-type beater with a capacity of 2500 pounds of paper had been converted for use of the Steam Jet Process. This involved installation of two

1¼-inch steam pipes through each side of the beater tub at points between the roll and backfall. Attached to the four pipes were nozzles which directed the steam diagonally upward across the beater and approximately parallel to the surface of the backfall. The wood fillers between the bars were protected by means of corrosion-resistant metal strips.

By the introduction of high-pressure steam through the nozzles, the broke was swept over the backfall without plugging the beater. Alum was added at the start of the operation and again while water was introduced with the furnish. The steam raised the temperature of the beater contents rapidly to a value approaching the boiling point of water. This temperature was maintained throughout the cycle. The jets of steam permitted furnishing the beater with large sheets and thick slabs of wet-strength paper without reducing the rate of circulation. Enough paper was added to give a consistency of about 10%, which was much higher than would be feasible if the steam jets were not used. Throughout the operation, the position of the roll was maintained to give a clearance of about 3 inches above the bedplate. The rubbing, tearing, and impact of the paper as it passed the beater roll and the steam jets, defibered the paper progressively as the melamine resin was hydrolyzed in the hot acidic suspension.

The steam flow, steam consumption, and temperatures involved in the Steam Jet Process were determined for a furnish consisting of 50% wet-strength paper and 50% normal broke. The beater was furnished in 27 minutes. Enough alum was added during this period to produce a final pH of 3.5. The moisture-free consistency at the time the beater was dropped was 9.1%.

TABLE VII.—STEAM DATA FOR STEAM JET PROCESS

Time, min.	Operation	Steam Flow, lb./hr.	Cumulative Amount of Steam, lb.
0	Water added, steam on, begin loading paper	4220	211
3		4700	446
6		4790	845
11		4890	1008
13		4890	1171
17		4890	1334
19		4790	1494
21		4790	1654
23		4890	1817
25		4890	1980
27	Finish loading paper	4890	2143
30		4890	2306
32	Steam off	4790	2466
48	Beater dropped		

Constant conditions:
150 p.s.i. steam pressure on the main steam line.
422° F. steam temperature in the 1¼-inch line to nozzle.

The steam data of Table VII represent the flow of steam through the four nozzles using a main steam line pressure of 150 p.s.i. The temperature of the steam was 422°F., which corresponds to about 55° of superheat at 150 p.s.i. According to the data obtained, the average flow rate was less than 5000 lb./hr. and, during the 32-minute period in which steam was applied, about 2500 pounds were used.

Because the highest temperature in the beater would probably be in the region of the backfall where the steam was introduced into the stock, arrangements were made to measure the temperature at this point. As shown in Fig. 2, a hole was drilled in the hood which permitted insertion of a thermocouple mounted at the end of a ¼-inch pipe. The hole was about 12 inches from the side of the beater. The lower portion of the pipe was curved so that it could be rotated in a circle having a diameter of 20 inches. By this means, it was possible to explore the region from a point near the nozzles to about the center of the beater and, by raising or lowering the pipe, temperatures could be obtained at a point near the hood to a position near the top of the backfall.

Measurements were made immediately after the paper was loaded and before the steam was turned off. It was found that the temperature of the stock was 212°F. at a point close to the backfall and near the end of the steam nozzles. However, near the center of the beater close to the backfall the temperature was 194°F. At other points, the temperature varied from 192 to 203°F. Because this region was not entirely filled with stock as it was circulated by the roll, the thermocouple probably was exposed intermittently to air and water vapor, giving a lower average reading than existed in the beater. This was apparent from the temperatures taken ahead of the roll before the beater was dropped. At a depth of 2 to 3 feet in the central portion of the channel, the temperature was 205 to 207°F.

For paper of high wet strength, it is possible that a steam flow rate of 6000 to 7000 lb./hr. would be required for this particular installation together with a longer operating cycle and, hence, a greater steam consumption. It is estimated that 2500 to 6500 pounds of steam per ton of broke would be consumed for repulping in this beater, depending on the melamine resin content of the paper. It may be feasible to reduce the pressure and temperature of the steam, as well as the total steam requirement, by further study of design and location of the nozzles. It should be emphasized that the only power applied in this operation was the amount used in circulating the stock.

It had been demonstrated in the course of using the Steam Jet Process that the wet-strength paper retained satisfactory quality for reuse in the manufacture of paper. By suitable dilution with other stock, the alum used in defibering did not interfere with the normal papermaking operation. In order to obtain further information on the effects of the processing on the pulp quality, a number of laboratory and commercial repulping cycles were evaluated.

During the time that the broke was fed to the beater for repulping with the Steam Jet Process, a representative sample of the paper was removed for laboratory trials. At the end of the cycle, the stock in the beater was sampled for testing at the Institute. This stock would normally have some undefibered paper which would be completely separated after mixing with other stock and passing through jordans ahead of the paper machine. To obtain an accurate evaluation of the physical properties of the pulp, the stock was diluted to 2.5% consistency and defibered in the Dilts beater at room temperature with the roll in a brushing position.

For basis of comparison, the sample of broke was also repulped by a laboratory procedure selected from those which had previously been used in repulping the tarpaulin paper. From the standpoint of the retention of strength qualities and freeness, one of the best procedures was the 3-hour soak in water at about 185° F., followed by brushing in the beater at the same temperature (see Table IV). Because the defibering of the stock from the Steam Jet Process would be completed at room temperature, the laboratory beating operation was also performed at this temperature, following the soaking at about 185° F. After these conditions were applied to the paper, a second repulping test was made by the same method, except that 2% of alum on the weight of

the paper was added in soaking to conform with the practice in the mill.

The data for the repulping of the various types of paper used in these evaluations are listed in Table VIII.

The printed map paper repulped by the Steam Jet Process in run D of Table VIII had physical properties equal to those obtained by the laboratory procedure in run E without alum and run E-1 with alum. However, on the other lots of paper, the laboratory method in which no alum was used gave slightly higher bursting strength than was obtained on the completely defibered stock from the Steam Jet Process and on the paper treated with alum in the laboratory. In all instances, the tearing strength for a given type of paper was practically constant, irrespective of the treatment used in defibering.

All the samples of map paper of high wet strength required less time to reach a given degree of defibering in the laboratory beater when alum was added. Considering this difference in brushing time in the beater, it is highly probable that the runs made without alum permitted much more beating action on the fibers liberated early in the cycle, even though some pieces of broke were not defibered. The greater amount of beating of this type probably accounts for the higher bursting strength of the broke processed in the laboratory without alum. Therefore, it would seem that the Steam Jet Process does not lower the strength of the pulp significantly below that of the repulped broke obtained by the laboratory procedure which, in turn, had given retention of strength equal to any of the methods applied to tarpaulin paper containing about twice as much melamine resin.

The laboratory procedure applied to the high wet-strength map paper did not disperse all the fiber bundles as effectively as the steam jet process, followed by a brief treatment in the laboratory beater. The prolonged mechanical action applied in the laboratory plus the greater proportion of beating tackle to pulp, emphasizes the unusual effect of the Steam Jet Process in which no fibers are brushed across metal surfaces. However, the steam jets assist the beater roll in imparting a high velocity to the pulp with a resultant high rate of circulation which combine to produce a liberation of the fibers as the melamine resin bonds are hydrolyzed. Furthermore, the steam jets make it possible to obtain an exceedingly high temperature throughout the mass of stock in the open beater which would not be practical if the ordinary methods of introducing steam were employed.

The Steam Jet Process may not directly solve the repulping problem of mills using mixed papers with a small percentage of wet-strength paper. However, by installing the jets in the repulping equipment, the usual method of operation could be employed for the mixed waste containing no wet-strength paper. When furnishes are encountered which do not repulp during the usual treatment, the operator could apply steam and alum to complete the defibering.

The Steam Jet Process, without the addition of alum, would represent a rapid means of defibering ordinary sized paper where steam is available for processing. To evaluate the cost of the Steam Jet Process, the increased capacity of the beater, if operated at higher consistency, and the reduced power requirement should be considered in relation to the steam costs. With the increased importance of producing a cleaner stock from mixed waste paper, a thorough defibering of the paper by the Steam Jet Process might leave most of the dirt and trash in large enough pieces so that they could be removed by screening without a large loss of pulp fibers in the form of chips of paper.

Conclusions

Throughout the investigation of repulping methods and the variables involved, it is apparent that the hydrolysis of melamine resin requires operating con-

TABLE VIII.—PHYSICAL PROPERTIES OF VARIOUS TYPES OF WET-STRENGTH PAPER REPULPED BY THE STEAM JET PROCESS AND LABORATORY PROCEDURES

Run	C	A	A-1	D	E	E-1
Type of paper	Unprinted map paper, 1.9% melamine resin			Printed map paper, 2.0% melamine resin		
Process	Steam Jet	Laboratory	Laboratory	Steam Jet	Laboratory	Laboratory
Alum applied, % by weight	2.5	0	2	2	0	2
pH data:						
In commercial beater	3.8	...	...	3.6	...	...
Soaking	...	4.9	3.8	...	4.7	3.7
In laboratory beater	4.1	5.5	4.2	4.1	5.2	4.0
Consistency in commercial beater, % (ovendry)	10.4	...	...	10.4	...	...
Time of treatment, min.:						
In commercial beater	77	...	...	82	...	...
In laboratory beater *	15	120	45	20	135	75
Properties of repulped broke:						
Schopper freeness, ml.	750	690	770	700	665	670
Apparent density	11.5	12.5	12.0	12.0	12.0	12.0
Burst, pt./100 lb.	51	77	68	69	67	66
Tear factor	1.72	1.69	1.81	1.87	1.80	1.81
Degree of defibering	Complete	Some fiber bundles	Complete	Complete	Many small fiber bundles	Some fiber bundles

Run	G	H	H-1	I	J	J-1
Type of paper	Printed map paper, 1.7% melamine resin			Locker paper, 1.1% melamine resin, 3.0% wax		
Process	Steam Jet	Laboratory	Laboratory	Steam Jet	Laboratory	Laboratory
Alum applied, % by weight	1	...	2	1.1	...	2
pH data:						
In commercial beater	3.6	...	...	3.8	...	...
Soaking	...	4.5	3.4	...	4.8	3.7
In laboratory beater	4.1	5.3	4.1	4.4	5.3	4.3
Consistency in commercial beater, % (ovendry)	10.2	...	...	9.6	...	...
Time of treatment, min.:						
In commercial beater	85	...	...	61	...	...
In laboratory beater *	20	135	75	5	30	0
Properties of repulped broke:						
Schopper freeness, ml.	695	690	665	775	730	780
Apparent density	12.5	12.0	12.0	12.5	12.0	12.0
Burst, pt./100 lb.	70	82	70	68	76	60
Tear factor	1.90	1.83	1.73	1.49	1.32	1.36
Degree of defibering	Complete	Many small fiber bundles	Some fiber bundles	Complete	Complete	Complete

Constant conditions:
203° F. average beater temperature for Steam Jet Process.
Paper soaked 3 hr. at about 185° F. for laboratory repulping.
* 2.5% consistency and room temperature for laboratory beater.

ditions approaching those which degrade cellulose. Excessive acidity at temperatures of about 185° F. or long exposure to high temperatures with less acidic conditions, such as in pressure cooking of broke, causes a loss in strength properties. By using alum to give a pH of about 4, and by raising the temperature very close to the boiling point, melamine resin wet-strength broke can be repulped without drastic mechanical action so that the physical characteristics will not be adversely affected.

Because the conditions for destroying the melamine resin wet-strength bond seem to approach those under which cellulose is degraded, other chemical treatments which liberate the fibers would be difficult to control.

Exploratory experiments with a disk refiner and a rod mill indicate that mechanical action of a type suitable for many defibering operations may not be effective as a single operation in repulping melamine resin wet-strength paper. On the other hand, cutting the paper into extremely small particles may increase the difficulty of repulping at high temperatures and may cause a rather large loss in strength.

In general, alkaline conditions increase the resistance of the paper to repulping by the beater method. If high alkalinity and high temperatures are applied by means of a kraft cook on a mixture of wood chips and shredded wet-strength broke, there is a definite loss in yield and severe degradation of the pulp strength.

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6. Steam Jet Process for repulping wet-strength paper. American Cyanamid Co., Tech. Bull. 18 (June 1, 1946).
7. U. S. Patent Application Serial No. 576,302, assigned to the American Cyanamid Company.

TAPPI Pacific Section Meets at Bellingham

The Pacific Section of the Technical Association of the Pulp and Paper Industry was held at the Leopold Hotel, Bellingham, Washington on Tuesday, March 11, 1947 with a total attendance of one hundred industry representatives from the Pacific Northwest. The meeting was called to order at 2:00 p.m. by the Section Chairman G. H. Gallaway, Crown Zellerbach Corp., Camas, Wash.

Chairman Gallaway introduced Mr. Harland R. Clodfelter, Research Department, Crown Zellerbach Corp., West Linn, Oregon, who presented his paper in competition for the Sibley Award entitled "Recovery of Fiber by Flotation."

In his paper Mr. Clodfelter reported on the extensive experimental work carried out at the West Linn mill on the operation of the air flotation type of save-all. He discussed several important factors which must be studied in the operation of this equipment including:

(1) amount and regulation of the air used.
(2) preparation and use of glue which he stated must be determined for each grade of paper being manufactured.
(3) influence of pH and pH range for best operation of the save-all.
(4) effect of alumina present in the system.

The remainder of the afternoon was given over to a discussion of Mill Instrumentation under the able direction of Mr. H. T. Peterson, Pulp Division, Weyerhaeuser Timber Co., Longview, Washington, acting as moderator.

After outlining the afternoon discussion, Mr. Peterson introduced Mr. J. B. Chandler, Pulp and Paper Engineer, Bristol Instrument Co., Waterbury, Conn., who delivered a paper on "The Measurement and Control of pH in the Pulp and Paper Industry." Mr. Chandler discussed the installation and use of pH control equipment and pointed out the many advantages to be gained such as uniformity of operation, permanent records of operations and the fact that the pH can be run in a higher range when controlled.

The next paper from the panel was presented by Mr. Eugene R. Klotz, Pacific Coast Manager, Fischer & Porter Co., Oakland, Cal., entitled "The Flowrator in the Pulp and Paper Industry." Mr. Klotz gave a detailed account of this specialized equipment and pointed out several possible applications in the pulp and paper processes.

The final discussion of the afternoon was delivered by Mr. J. G. Ziegler, Pacific Coast Sales Engineer, Taylor Instrument Co., San Francisco, Cal. Mr. Ziegler gave a highly interesting talk on process control in which he pointed out the importance of careful analysis of control problems in order to have control equipment function properly. He explained how in many instances, a few simple changes in a process will enable control instruments to actually control the process whereas the same equipment improperly installed might, because of time lags, result in little effective control.

The afternoon technical session adjourned at 5:00 p.m. for a social hour and reconvened at 6:30 p.m. for dinner in the Crystal Ball Room of the Hotel Leopold. The principal after dinner address was given by Mr. Jagdish C. Aggarwala M.S. University of Punjab and at present an Indian Government student at the University of Washington.

The meeting was adjourned at 9:30 p.m. Those attending were:

Chas. E. Ackley, J. C. Aggarwala, Olavi Aho, Andrew B. Baldauf, Henry E. Becker, P. S. Billington, J. A. Blake, H. L. Bottemiller, J. R. Brown, Jr., Allen M. Cadigan, Ivan D. Campbell, John M. Carlson, Harold Cavin, Ducie C. Chads, John B. Chandler, Lee F. Chaney, E. Christoferson, Harland R. Cladfelter, Chas. K. Clark, Dwayne J. Clark, Wm. M. Clines, Sidney M. Collier, N. W. Coster, J. V. B. Cox, Gordon Curzon, Arthur Dammann, Harold A. Deery, Henry J. Donnelly, J. H. Easterly, Edward F. Egan, E. Ekholm, E. O. Ericsson, Philip Evans, Fred N. Fitting, E. F. Flohr, Francis W. Flynn, S. D. Ford, G. H. Gallaway, N. O. Galteland, R. B. Galvin, Alfred Graef, Donald Granquist, V. C. Haner, H. A. Hauff, S. E. Hazelquist, Frank Hedberg, Norman Heglund, L. E. Hill, Jr., M. J. Hodson, W. F. Holzer, Lester M. Johnson, Milton J. Maguire, Robert W. Martig, Joseph L. McCarthy, John J. McNair, Walter Morris, A. Newcomb, H. B. Petersen, H. T. Peterson, Roy W. Potter, John T. Purvis, S. A. Quist, J. G. Ramsey, Jr., Carl A. Ramstad, Donald L. Reed, Vance L. Reynolds, H. C. Ricker, C. D. Ries, H. L. Rudow, Winston Scott, Thomas Secrest, J. M. Shedd, Larry K. Smith, Chas. Stehman, E. E. Stephens, Brian L. Shera, M. C. Stewart, R. I. Thieme, John E. Thomas, R. M. True, L. Turcotte, Preston Varney, Russell O. Vognild, Luella Warriner, L. H. Wear, L. A. Wendt, F. A. Westfall, Jack Wilcox, Clarke M. Williams, Herb Wymore, Ralph Wyndham, and J. G. Ziegler.

Modern Sulphite Acid Making*

By Thomas Gerace[1]

Like many sulphite mills in the United States and Canada, the St. Regis Paper Co. modernized its sulphite mill at Deferiet, New York, with the Chemipulp hot acid system, circulating system, and automatic controls. All these improvements are very desirable and necessary, yet without an efficient acid system full operational benefits cannot be obtained. At Deferiet there was an obsolete batch acid system which might have been satisfactory thirty or forty years ago. In the summer months when the water temperature would rise to as high as 35°C., it was a problem to make any kind of acid. Hardwood (maple, birch, and beech) was cooked with acid as low as 4.30% total and 3.10% free. Maximum temperatures had to be increased appreciably, cooking time lengthened, and the pulp quality deteriorated noticeably.

The need for a complete new acid system therefore, was very necessary. After much deliberation and after inspecting modern acid equipment, it was decided to continue the use of the milk-of-lime system. After due consideration the decision was made to install a Chemipulp-Kimberly-Clark acid making system.

It was desired to have a system capable of producing an acid which would not only supply continuously the amount of sulphur and lime that are consumed in the cooking process regardless of water temperatures, but also one which would be capable, on demand, of supplying a sufficient excess of sulphur as sulphur dioxide to build up the concentration of the cooking acid to a maximum concentration of free sulphur dioxide in a minimum period of time.

Sulphur Burning

A 42 inch I.D. by 10 feet 4 inch trunnion to trunnion rotary sulphur burner (Glens Falls type) is being used. Molten sulphur from a 21 ton pit is pumped through a pipe entering at the axis of the burner. A 2 g.p.m. Hasco sulphur pump is used while a similar pump is used as a stand-by. The pumps are built in pairs and are called the Hasco Duplex Sulphur Pumps. One pump has the above mentioned capacity, a second pump being a stand-by pump which can immediately be put into service by throwing in a clutch and adjusting for the desired stroke. Each pump is mounted on a separate base plate and can be readily taken from the pit for cleaning while the other pump is running.

Between the burner and combustion chamber there is approximately 30 feet of 20 inch unlined C.I. pipe. The combustion chamber, having a 9 inch lining and three baffles, was made from an old pressure filter tank. This 8 by 20 foot combustion chamber lies in a horizontal position.

The secondary air which is delivered to the back of the burner is taken from the room housing the combustion chamber and is regulated by a Leeds and Northrup automatic controller and valve. The (effluent) gas from the combustion chamber is then cooled.

Cooling System

The system used for cooling is a direct water spray type developed by the Kimberly-Clark Corporation and Chemipulp Process Inc. The process involves first humidifying the burner gas to practically complete saturation. This produces an almost instantaneous drop in its temperature to the saturated gas temperature. There is little or no heat removal accompanying this temperature drop, the heat in the saturated gas having been converted into latent heat in the water vapor added to the gas. The second phase of the process is simply one of removing all the heat in the saturated gas, both latent and sensible, down to the temperature to which the gas is to be cooled.

To accomplish the above mentioned cooling two towers in series are used. The first tower is relatively small—14 feet long by 30 inches I.D. This primary tower was picked up in the junk yard and was first lined with sheet lead and then with acid-proof brick. In three and one half years of operation, eight bricks in the neck of the tower have been replaced. The original spray nozzle is being used and it appears to be as good as the day it was put into operation.

The hot gas from the combustion chamber enters at the top of the primary cooler and as it travels down through the tower is sprayed with concurrent cooling water (60 g.p.m.) by a Spraco nozzle made by Spray Engineering Company. Since sulphur dioxide is not appreciably soluble in hot water only a small amount of sulphur—approximately 4 pounds/ton—is lost by this cooling method. The advantages for this type cooling are quite obvious. It occupies very little space. Because of rapid cooling, SO_3 formation is reduced to a minimum. Whatever SO_3 is formed is absorbed by the water and the gas also is washed quite free of any sublimed sulphur. The SO_3 content of the cooking acid has never exceeded 0.03%.

From the primary tower, the partially cooled gas

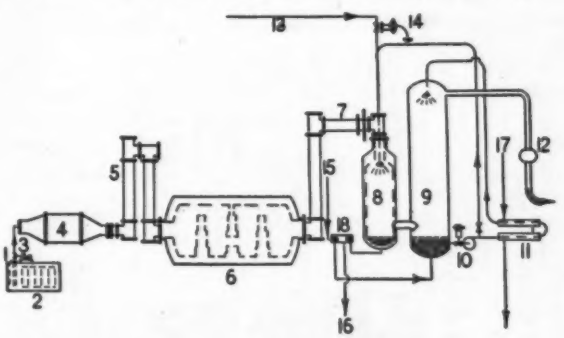

FIG. 1

SO_3 Gas Plant With Chemipulp-K.C. Spray Cooler

(1) Sulphur From Storage
(2) Sulphur Melter
(3) Molten Sulphur Pump
(4) Sulphur Burner
(5) Hot Gas Line
(6) Horizontal Combustion Chamber
(7) Hot Gas Line
(8) Primary Cooler
(9) Secondary Cooler
(10) Automatic Control and Pump
(11) Heat Exchanger
(12) Gas Compressor
(13) Emergency Water Line
(14) Water Control Valve
(15) Fresh Water Inlet
(16) Water Outlet
(17) Cooling Water Inlet
(18) Weir Box

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 24-27, 1947.

[1] Sulphite Superintendent, St. Regis Paper Co., Deferiet, N. Y.

passes on to a second or secondary cooling tower which is considerably larger than the first or primary tower.

Tower Operation

Because stainless steel was not available at the time of construction a 5 foot I.D. by 24 foot long wooden tower made of yellow pine is being used. This tower is packed with 4 inch O.D. by 4 inch packing rings and has a rather large quantity of cooling water—approximately 100 g.p.m.—introduced into the tower through a spray nozzle at its top. The gas flows countercurrent to the cooling water. To keep sulphur loss at a minimum, the water from this tower is pumped through a heat exchanger to reduce its temperature and back to the top of the tower. The lead heat exchanger was made at the mill and has had no repairs since it was started.

To maintain the water level in the secondary tower, makeup water is added in the weir box. The SO_2 absorbed by the cooling water and which collects at the bottom of the tower overflows to the sewer. The presence of sublimed sulphur can be detected immediately by the milky appearance of the water in the weir box in the overflow from the primary tower.

In case of either power failure or stoppage of the circulating pump for any reason, an automatic valve will open a fresh water supply for the spray in the primary tower to prevent damage to the equipment from overheating.

The cooled gas, which has been kept at approximately 19% since the acid plant was started, is then delivered through a hard-lead line by a 12 by 12 inch heavy duty Roots-Connersville blower constructed of chrome nickel iron material. The blower will deliver 1200 g.p.m. at 7.5 p.s.i. pressure.

The two absorption towers, which are also made of yellow pine, are 5 feet I.D. by 24 feet. Each tower has four active bubble compartments, obtained through the use of bubble caps. The bubble caps were made at the mill from lead and are quite satisfactory. The two towers are in series so that they may be used as strong acid and weak acid towers, reversing the towers in function at regular intervals. By so doing, any lime and monosulphite makeup in either tower, during the period of functioning as the weak tower, is removed by passing it into solution during its period of operation as the strong tower. This eliminates the decidedly disagreeable and rather expensive practice of periodic manual cleaning.

A heavy lime slurry of approximately 250 grams per liter or 26° Bé. at 95° F. is made up and pumped

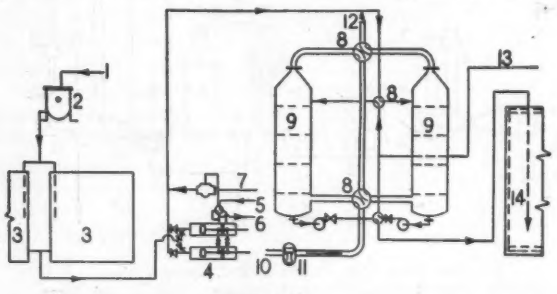

FIG. 2

Chemipulp-K.C. Continuous Milk of Lime Acid System. (1) Dry Lime (2) Lime Slacker (3) Slurry Tanks (4) Lime Water Proportioning Pumps (5,6) Steam Inlet & Condensate Return, Reversible (7) Metered Water & Steam Controller (8) Four-Way Cocks (9) Absorption Towers—Reversible Type (10) Line From Secondary Cooler (11) Gas Compressor (12) Exhaust To Atmosphere (13) Line From Acidified Water Tank (14) Raw Acid Storage Tank

TABLE I

	Total	Free	Combined	
June, 1946	3.40	2.00	1.40	
July, 1946	3.50	2.15	1.35	
August, 1946	3.30	1.90	1.40	
Sept., 1946	3.35	2.05	1.30	
Oct., 1946	3.60	2.15	1.45	
Nov., 1946	3.65	2.20	1.45	
	Accumulator Acid at 40 Pounds Pressure			
				Temperature, ° C.
June, 1946	7.50	6.50	1.00	80
July, 1946	7.60	6.55	1.05	82
August, 1946	7.45	6.42	1.05	83
Sept., 1946	7.90	6.88	1.02	81
Oct., 1946	8.10	7.10	1.00	80
Nov., 1946	8.4	7.32	1.08	78

to a mixing tank in the acid plant. Lime slurry of the proper density (12 to 15 g/l as Ca $(OH)_2$ and Mg $(OH)_2$ is supplied from the proportioning unit to the absorption towers. The proportioning unit consists of two Proportioneers operated by steam. The Proportioneers have an adjustable stroke and when once adjusted to give the desired results react automatically with an increase or decrease in the amount of acid made. This system works satisfactorily. Combined SO_2 seldom varies more than 5%. This is believed to be very good since the dolomite lime comes from six or seven different suppliers.

Recovery System

A very important part of the new acid system is the independent recovery system. In most, or nearly all acid plants, the "over" or "reclaimed" gas from acid storage tanks and relief recovery tanks is introduced into the burner gas at some point in the system prior to the acid making towers. This gas is never steady in rate of flow. If the gas fluctuates in volume it means that the air intake to the burner gas system must fluctuate with the "reclaimed" or "over" gas fluctuations. This necessitates constant attention and frequent draft adjustments to prevent sublimation or weak gas with the possibility of high SO_3 content.

In the recovery system, the "reclaimed" or "over" gas is passed through a 5 foot 4 inch I.D. by 20 foot tower packed with partition rings. The flow of gas is countercurrent to the continuous flow of raw acid from the acid plant. Since the SO_2 content of the "reclaimed" or "over" gas is rather high, considerable SO_2 is absorbed by the raw acid. Part of the unabsorbed gas from this tower passes through a smaller packed tower (tail gas tower) countercurrent to a very small metered flow of water. The other unabsorbed gas is passed through the acid room intermediate tank. The intermediate tank is merely a storage tank for raw acid from the acid plant. The unabsorbed gas from the intermediate tank—if there should be any—also passes to the small packed or tail gas tower. The weak acid from the tail gas tower flows to an equalizing tank and is pumped from there to the intermediate acid tank.

Obviously, by this procedure no reclaimed gas enters the raw acid system. Therefore, the air flow into the burner system remains constant for any set rate of operation, and, therefore, the burning system requires little attention.

The above described acid system operates practically automatically once it is brought into proper adjustment. The system was designed for 125 tons daily pulp production. However, only approximately 75 tons are made at present and so, it is difficult at times to keep the acid concentration from going too high.

The Table I illustrates the build-up of acid from the raw acid to accumulator acid.